

# Review and Analysis of Railroad Passenger Car Waste Retention Systems

Volume II: Appendices C, D and E

Office of Research and Development Washington DC 20590

> Arthur D. Little, Inc. Acorn Park Cambridge MA 02140

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15. Supplementary Notes

#### 16. Abstract

The traditional practice of dumping railroad toilet and other waste directly onto the tracks is still used on most passenger cars operated by Amtrak. However, this practice is being questioned and legislation to require full waste retention systems is under consideration. This report has been prepared in response to a Congressional directive to identify, describe and evaluate waste-retention systems able to eliminate the need for direct dumping on the track.

This report provides the following information:

- A description of waste retention systems currently used by intercity and local passenger railroads in the United States and elsewhere, including service experience.
- A discussion of waste disposal and environmental issues.
- An evaluation of the performance of the different waste retention technologies and systems.
- · Review and estimate of capital, operating and maintenance costs.
- · Recommendations regarding test programs for waste retention systems.

<ul> <li>17. Key Words</li> <li>Toilet and other waste-retention technologies</li> <li>Intercity passenger train cars and services</li> <li>Test programs</li> <li>Cost evaluation</li> </ul>		1	ailable to the echnical Inform	-	_
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### METRIC / ENGLISH CONVERSION FACTORS

### **ENGLISH TO METRIC**

### LENGTH (APPROXIMATE)

1 inch (in) = 2.5 centimeters (cm)

1 foot (ft) = 30 centimeters (cm)

1 yard (yd) = 0.9 meter (m)

1 mile (mi) = 1.6 kilometers (km)

# AREA (APPROXIMATE)

1 square inch (sq in, in<sup>2</sup>) = 6.5 square centimeters (cm<sup>2</sup>)

1 square foot (sq ft, ft<sup>2</sup>) = 0.09 square meter ( $m^2$ )

1 square yard (sq yd, yd²) = 0.8 square meter (m²)

1 square mile (sq mi, mi<sup>2</sup>) = 2.6 square kilometers (km<sup>2</sup>)

1 acre = 0.4 hectares (he) = 4,000 square meters (m<sup>2</sup>)

### MASS - WEIGHT (APPROXIMATE)

1 ounce (oz) = 28 grams (gr)

1 pound (lb) = .45 kilogram (kg)

1 short ton = 2,000 pounds (lb) = 0.9 tonne (t)

#### VOLUME (APPROXIMATE)

1 teaspoon (tsp) = 5 milliliters (ml)

1 tablespoon (tbsp) = 15 milliliters (ml)

1 fluid ounce (fl oz) = 30 milliliters (ml)

 $1 \exp(c) = 0.24 \text{ liter (i)}$ 

1 pint (pt) = 0.47 liter (l)

1 quart (qt) = 0.96 liter (l)

1 gallon (gal) = 3.8 liters (l)

1 cubic foot (cu ft, ft<sup>3</sup>) = 0.03 cubic meter (m<sup>3</sup>)

1 cubic yard (cu yd, yd³) = 0.76 cubic meter (m³)

### TEMPERATURE (EXACT)

[(x-32)(5/9)]\*F = y\*C

### METRIC TO ENGLISH

### LENGTH (APPROXIMATE)

1 millimeter (mm) = 0.04 inch (in)

1 centimeter (cm) = 0.4 inch (in)

1 meter (m) = 3.3 feet (ft)

1 meter (m) = 1.1 yards (yd)

1 kilometer (km) = 0.6 mile (mi)

### AREA (APPROXIMATE)

1 square centimeter (cm²) = 0.16 square inch (sq in, in²)

1 square meter  $(m^2) = 1.2$  square yards (sq yd, yd<sup>2</sup>)

1 square kilometer (km²) = 0.4 square mile (sq mi, mi²)

1 hectare (he) = 10,000 square meters (m²) = 2.5 acres

### MASS - WEIGHT (APPROXIMATE)

 $1 \operatorname{gram}(\operatorname{gr}) = 0.036 \operatorname{ounce}(\operatorname{oz})$ 

1 kilogram (kg) = 2.2 pounds (lb)

1 tonne (t) = 1,000 kilograms (kg) = 1.1 short tons

### VOLUME (APPROXIMATE)

1 milliliter (ml) = 0.03 fluid ounce (fl oz)

1 liter (1) = 2.1 pints (pt)

1 liter (i) = 1.06 quarts (qt)

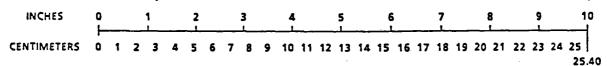
1 liter (1) = 0.26 gallon (gal)

1 cubic meter (m³) = 36 cubic feet (cu ft, ft³)

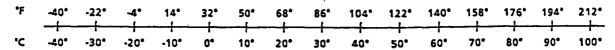
1 cubic meter (m³) = 1.3 cubic yards (cu yd, yd³)

# TEMPERATURE (EXACT) [(9/5) y + 32] °C = x °F

### QUICK INCH-CENTIMETER LENGTH CONVERSION



### QUICK FAHRENHEIT-CELCIUS TEMPERATURE CONVERSION



For more exact and/or other conversion factors, see NBS Miscellaneous Publication 286, Units of Weights and Measures. Price \$2.50. SD Catalog No. C13 10 266.

# **Project Team**

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  - Philip A. Saigh, Director, Marketing and Sales
- Monogram Industries
  - William I. Mercer, Product Sales Manager
- Railtech Ltd.
  - Tim Secord, Manager, Engineering and Product Development
- Microphor
  - Vern Haselswerdt, Vice President Sales

### Other Rail Systems

Several rail systems responded to our inquiries or entertained visits by ADL staff. These included:

### North America

Long Island Railroad
Metro-North Commuter Railroad
Massachusetts Bay Transportation Authority
GO Transit (Toronto)
METRA (Chicago)
Via-Rail Canada

### International

Japan Railways
British Rail
Danish State Railways
German Federal Railways
French National Railways

### **ABBREVIATIONS**

Most abbreviations used in the tables are self explanatory. The meaning of those that are not are:

Coach-HEP-HLV:

Ex Santa-Fe "El Capitan" bilevel coach

equipped with head end power.

Lounge-HEP-HLV:

Ex Santa-Fe "El Capitan" bilevel lounge

equipped with head end power.

Coach (HDCP):

Even with the help of Amtrak, we have been unable to determine the meaning of the abbreviation. However, the vehicle itself appears to be a conventional Heritage coach

car.

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### Introduction to Appendices C, D and E

Appendices C, D and E provide full details of the cost estimates for capital operating and maintenance costs by toilet system type, car type and Amtrak route.

<u>Section C1</u>, the first part of Appendix C, provides a summary of these costs for individual cars of each type and for the present Amtrak fleet of each car type. Costs are presented by each of five toilet types and for favorable, expected and unfavorable cost scenarios. These scenarios cover the range of expected costs for each cost element.

<u>Section C2</u> presents a detailed breakdown of these costs by a representative set of Amtrak routes for the "expected" cost scenario and each toilet type. The appropriate car types as used on each route are covered in the costings.

<u>Section C3</u> presents a detailed breakdown of costs in the same way as Section C2, but for the "favorable" scenario.

<u>Section C4</u> presents a detailed breakdown of costs in the same way as Section C2, but for the "unfavorable" scenario.

Appendix D presents a detailed breakdown of costs by individual car type for each of five toilet types for each cost scenario. The toilet types are:

- Monogram Modified Vacuum
- Monogram Self-Contained Recirculating
- Microphor Gravity
- Evac Ultimate
- Railtech WTS 8300

Appendix E presents a detailed definition and description of each parameter used in the cost model and the sources of the numerical data used in the analysis.

### APPENDIX C

### COST MODEL FOR AMTRAK RETENTION TOILET SYSTEMS— COST BY ROUTE

C1 Summary of Costs by Toilet System and Route

Modified Vacuum **Equipment Type:** Monogram Scenario: **Expected Typical Toilets** Cars Cars in Operating Capital **In Consist** Car Type Car Number per Car Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$13.532 \$55.896 4 40 \$7,337 Coach Super 34000 6 \$39,168 Coach-HEP-HLV 4 1 21 \$5,208 39940 \$33,592 2 1 Lounge-HEP-HLV 39970 6 \$3,160 \$28,016 5 3 \$4.927 **Bag Coach Super** 31000 48 \$36,380 Sleeper Super 32000 12 3 34 \$10,416 \$55,896 6 5 Coach Super 34000 51 \$5,718 \$39,168 39900 4 1 Trans Dorm Coach 36 \$3,985 \$33,592 1 Sleeper 10-6 2400(30) 17 27 \$31,746 \$69.836 1 Amlounge II 28000 2 13 \$4,519 \$28,016 Coach (HDCP) 4000 3 1 21 \$6,319 \$30,804 Coach 4600 2 4 78 \$4,514 \$28,016 2 1 Horizon 54000 103 \$4,682 \$28,016 Dome Coach 9400 2 1 12 \$4,504 \$28,016 2080 32 1 Slumbercoach 24-8 16 \$34,595 \$111,656 Viewliner-Sleeper 2300 17 1 2 \$18,714 \$69,836 2 Sleeper 10-6 2400(30) 17 55 \$18,676 \$69,836 7 Amcoach II 25000 2 119 \$2,929 \$28,016 2 Amlounge II 28000 1 13 \$2,898 \$28,016 Amcafe 20000 2 1 45 \$4,582 \$28,016 2 3 Amclub 20100 24 \$4,513 \$28,016 2 1 Amcoach 21000 67 \$4,759 \$28,016 2 Met-Srvc Dinette 20900 1 13 \$4,705 \$28,016 Met-Srvc Club 20970 2 1 13 \$4,891 \$28,016 Met-Srvc Coach 2 4 21900 50 \$5,393 \$28,016 2 1 25 Amdinette 20200 \$4,681 \$28,016 Amcoach 21000 2 3 200 \$5,749 \$28,016 2 1 Amcoach 21800 31 \$5,328 \$28,016 Turbo Power Coach 150-Even 1 1 14 \$2,830 \$25,228 Turbo Power Club 151-Odd 1 1 6 \$2,708 \$25,228 Turbo Cafe 170 1 1 3 \$2,943 \$25,228 Turbo Coach 170 2 3 21 \$4,955 \$28,016 Total: 1.239

**Entire Fleet:** 

1,367

		_		
Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$460,103	\$1,900,464	#1-2	Sunset Limited	New Orleans/Los Angeles
\$296,745	\$1,584,128	#1-2	Sunset Limited	New Orleans/Los Angeles
\$109,360	\$705,432	#1-2	Sunset Limited	New Orleans/Los Angeles
\$18,961	\$168,096	#1-2	Sunset Limited	New Orleans/Los Angeles
\$236,494	\$1,746,240	#5-6	California Zephyr	Chicago/Oakland
\$354,140	\$1,900,464	#5-6	California Zephyr	Chicago/Oakland
\$289,073	\$1,980,160	#5-6	California Zephyr	Chicago/Oakland
\$143,466	\$1,209,312	#5-6	California Zephyr	Chicago/Oakland
\$859,054	\$1,889,762	#58	City of New Orleans	New Orleans/Chicago
\$56,489	\$350,200	#58	City of New Orleans	New Orleans/Chicago
\$132,689	\$646,884	#58	City of New Orleans	New Orleans/Chicago
\$352,110	\$2,185,248	#58	City of New Orleans	New Orleans/Chicago
\$482,201	\$2,885,648	#58		New Orleans/Chicago
\$54,053	\$336,192	#58	City of New Orleans	New Orleans/Chicago
\$553,520	\$1,786,496	#87-88	Silver Meteor	New York City/Tampa
\$37,428	\$139,672	#87-88	Silver Meteor	New York City/Tampa
\$1,026,074	\$3,836,790	#87-88	Silver Meteor	New York City/Tampa
\$348,598	\$3,333,904	#87-88	Silver Meteor	New York City/Tampa
\$36,227	\$350,200	#87-88	Silver Meteor	New York City/Tampa
\$206,181	\$1,260,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$108,312	\$672,384	#193	Benjamin-Franklin	Boston/Philadelphia
\$316,505	\$1,863,064	#193	Benjamin-Franklin	Boston/Philadelphia
\$61,169	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$63,584	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$269,632	\$1,400,800	#200	Metroliner	Washington DC/New York Cit
\$117,017	\$700,400	#242	Hudson Highlander	Albany/New York City
\$1,146,865	\$5,589,192	#242	Hudson Highlander	Albany/New York City
\$165,183	\$868,496	#242	Hudson Highlander	Albany/New York City
\$39,621	\$353,192	#250	Electric City Express	Schnecetady/New York City
\$16,247	\$151,368	#250	Electric City Express	Schnecetady/New York City
\$8,829	\$75,684	#250	Electric City Express	Schnecetady/New York City
\$104,052	\$588,336	#250	Electric City Express	Schnecetady/New York City
\$8,469,980	\$43,187,344	~		
\$9,345,007	\$47,648,991			

Self-Cont'd Recirc **Equipment Type:** Monogram Scenario: Expected Typical Toilets Cars Cars in Capital Operating 'Car Number in Consist Service Cost/Car Cost/Car Car Type per Car 3 34 \$42,456 Sleeper Super 32000 12 \$20.861 Coach Super 34000 6 1 40 \$10.581 \$21,228 Coach-HEP-HI V 4 1 21 39940 \$9.290 \$14,152 Lounge-HEP-HLV 39970 2 1 6 \$4,773 \$7.076 5 3 \$17,690 Bag Coach Super 31000 48 \$9.348 3 Sleeper Super 12 34 \$42.456 32000 \$17,766 6 5 Coach Super 34000 51 \$11.185 \$21,228 Trans Dorm Coach 39900 4 1 36 \$5.977 \$14,152 Sleeper 10-6 17 1 27 2400(30) \$42,468 \$60.146 2 1 Amlounge II 28000 13 \$5.126 \$7.076 3 1 Coach (HDCP) 4000 21 \$7.607 \$10.614 Coach 4600 2 4 78 \$5,124 \$7.076 2 Horizon 54000 1 103 \$5.219 \$7.076 9400 2 1 Dome Coach 12 \$5.118 \$7.076. Slumbercoach 24-8 2080 32 1 16 \$55,367 \$113,216 Viewliner-Sleeper 2300 17 1 2 \$29,437 \$60,146 Sleeper 10-6 2400(30) 17 2 55 \$29,415 \$60,146 7 Amcoach II 25000 2 119 \$4.636 \$7,076 Amlounge II 28000 2 1 . 13 \$3,543 \$7,076 20000 2 1 45 \$5.168 \$7.076 Amcafe 2 3 Amclub 20100 24 \$5.128 \$7.076 Amcoach 21000 2 1 67 \$5,273 \$7.076 Met-Srvc Dinette 20900 2 1 13 \$5,249 \$7,076 Met-Srvc Club 2 1 20970 13 \$5,363 \$7,076 Met-Srvc Coach 21900 2 4 50 \$5,668 \$7,076 2 \$7,076 Amdinette 20200 1 25 \$5.234 2 3 200 Amcoach 21000 \$5.885 \$7.076 Amcoach 21800 2 1 31 \$5,629 \$7,076 Turbo Power Coach 1 1 150-Even 14 \$2,722 \$3,538 Turbo Power Club 151-Odd 1 1 \$3.538 6 \$2.648 Turbo Cafe 170 1 1 3 \$2,790 \$3,538 Turbo Coach 2 3 \$7,076 170 21 \$5,398

Total: 1,239
Entire Fleet: 1.367

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$709,264	\$1,443,504	#1-2	Sunset Limited	New Orleans/Los Angeles
\$427,926	\$858,555		Sunset Limited	New Orleans/Los Angeles
\$195,089	\$297,192		Sunset Limited	New Orleans/Los Angeles
\$28,637	\$42,456	#1-2	Sunset Limited	New Orleans/Los Angeles
\$448,723	\$849,120	#5-6	California Zephyr	Chicago/Oakland
\$604,035	\$1,443,504		California Zephyr	Chicago/Oakland
\$565,449	\$1,073,193	#5-6	California Zephyr	Chicago/Oakland
\$215,174	\$509,472	#5-6	California Zephyr	Chicago/Oakland
\$1,149,189	\$1,627,551	#58	• •	New Orleans/Chicago
\$64,080	\$88,450		•	New Orleans/Chicago
\$159,744	\$222,894		•	New Orleans/Chicago
\$399,639	\$551,928		•	New Orleans/Chicago
\$537,547	\$728,828		•	New Orleans/Chicago
\$61,416	\$84,912	:	•	New Orleans/Chicago
\$885,875	\$1,811,456	#87-88	Silver Meteor	New York City/Tampa
\$58,873	\$120,292		Silver Meteor	New York City/Tampa
\$1,616,069	\$3,304,421	#87-88	Silver Meteor	New York City/Tampa
\$551,662	\$842,044	#87-88	Silver Meteor	New York City/Tampa
\$44,291	\$88,450	#87-88	Silver Meteor	New York City/Tampa
\$232,570	\$318,420	#193	Benjamin-Franklin	Boston/Philadelphia
\$123,063	\$169,824		Benjamin-Franklin	Boston/Philadelphia
\$350,657	\$470,554		Benjamin-Franklin	Boston/Philadelphia
\$68,242	\$91,988		Metroliner	Washington DC/New York Cit
\$69,714	\$91,988		Metroliner	Washington DC/New York Cit
\$283,415		#200	Metroliner	Washington DC/New York Cit
\$130,860	\$176,900	#242	Hudson Highlander	Albany/New York City
\$1,174,114	\$1,411,662		Hudson Highlander	Albany/New York City
\$174,505		#242	•	Albany/New York City
\$38,102	\$49,532	#250	_	Schnecetady/New York City
\$15,887	\$21,228		•	Schnecetady/New York City
\$8,369	\$10,614	#250		Schnecetady/New York City
\$113,353	\$148,596	#250	• •	Schnecetady/New York City
\$11,505,536	\$19,522,684		•	
\$12,694,163	\$21,539,555			•
•	-			

Equipment Type: Scenario:	Microphor Expected	Gravity				
ocenano.	•	Toilets	Coro	Core in	Operation	Control
Cor Time	Typical Car Number		Cars in Consist	Cars in Service	Operating Cost/Car	Capital Cost/Car
Car Type		•				
Sleeper Super	32000	12	3	34	\$14,293	\$74,032
Coach Super	34000	6	4	40	\$7,782	\$42,304
Coach-HEP-HLV	39940	4	•	21	\$5,490	\$31,728
Lounge-HEP-HLV	39970	2	1	6	\$3,542	\$21,152
Bag Coach Super	31000	5	3	48	\$5,367	\$37,016
Sleeper Super	32000	12	3	34	\$11,131	•
Coach Super	34000	6	5	51	\$6,228	\$42,304
Trans Dorm Coach	39900	4	1	36	\$4,087	\$31,728
Sleeper 10-6	2400(30)	17	1	27	\$32,789	\$100,472
Amlounge II	28000	2	1	13	\$4,556	\$21,152
Coach (HDCP)	4000	3	1	21	\$6,408	\$26,440
Coach	4600	2	4	78	\$4,546	\$21,152
Horizon	54000	2	1	103	\$4,864	\$21,152
Dome Coach	9400	2	1	12	\$4,528	\$21,152
Slumbercoach 24-8	2080	32	1	16	\$36,777	\$179,792
Viewliner-Sleeper	2300	17	1	2	\$19,754	\$100,472
Sleeper 10-6	2400(30)	.17	2	55	\$19,683	\$100,472
Amcoach II	25000	2	7	119	\$2,915	\$21,152
Amlounge II	28000	2	" <b>1</b>	13	\$2,856	\$21,152
Amcafe	20000	2	1	45	\$4,675	\$21,152
Amclub	201.00	2	3	24	\$4,544	\$21,152
Amcoach	21000	2	1	67	\$5,012	\$21,152
Met-Srvc Dinette	20900	2	1	13	\$4,909	\$21,152
Met-Srvc Club	20970	2	1	13	\$5,262	\$21,152
Met-Srvc Coach	21900	2	4	50	\$6,214	\$21,152
Amdinette	20200	2	1	25	\$4,863	\$21,152
Amcoach	21000	2	3	200	\$6,890	\$21,152
Amcoach	21800	2	1	31	\$6,092	\$21,152
Turbo Power Coach	150-Even	1	1	14	\$2,913	\$15,864
Turbo Power Club	151-Odd	မို	1	6	\$2,681	\$15,864
Turbo Cafe	170	1	1	3	\$3,127	\$15,864
Turbo Coach	170	2	3	21	\$5,383	\$21,152
Taibo Ooacii	170	Total:	3	1,239	φυ,υυυ	Ψ21,132
	•	Entire Flee	o <b>†</b> *	1,367		
		F11010 1 100	26.	1,307		

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Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$485,972	\$2,517,088	#1-2	Sunset Limited	New Orleans/Los Angeles
\$314,757	\$1,710,962	#1-2	Sunset Limited	New Orleans/Los Angeles
\$115,289	\$666,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$21,250	\$126,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$257,640	\$1,776,768	#5-6	California Zephyr	Chicago/Oakland
\$378,465	\$2,517,088	#5-6	California Zephyr	Chicago/Oakland
\$314,864	\$2,138,702	#5-6	California Zephyr	Chicago/Oakland
\$147,146	\$1,142,208	#5-6	California Zephyr	Chicago/Oakland
\$887,258	\$2,718,772	#58	City of New Orleans	New Orleans/Chicago
\$56,948	\$264,400	#58	City of New Orleans	New Orleans/Chicago
\$134,570	\$555,240	#58	City of New Orleans	New Orleans/Chicago
\$354,626	\$1,649,856	#58	•	New Orleans/Chicago
\$501,010	\$2,178,656	#58	•	New Orleans/Chicago
\$54,334	\$253,824	#58	City of New Orleans	New Orleans/Chicago
\$588,437	\$2,876,672	#87-88	Silver Meteor	New York City/Tampa
\$39,508	\$200,944	#87-88	Silver Meteor	New York City/Tampa
\$1,081,386	\$5,519,932	#87-88	Silver Meteor	New York City/Tampa
\$346,893	\$2,517,088	#87-88	Silver Meteor	New York City/Tampa
\$35,697	\$264,400	#87-88	Silver Meteor	New York City/Tampa
\$210,364	\$951,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$109,060	\$507,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$333,304	\$1,406,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$63,820	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$68,405	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$310,709	\$1,057,600	#200	Metroliner	Washington DC/New York Cit
\$121,563	\$528,800	#242	Hudson Highlander	Albany/New York City
\$1,374,582	\$4,219,824	#242	Hudson Highlander	Albany/New York City
\$188,864	\$655,712	#242	Hudson Highlander	Albany/New York City
\$40,781	\$222,096	#250	•	Schnecetady/New York City
\$16,085	\$95,184	#250	•	Schnecetady/New York City
\$9,381	\$47,592	#250	•	Schnecetady/New York City
\$113,044	\$444,192	#250	Electric City Express	Schnecetady/New York City
\$9,076,011	\$42,282,848	,		
\$10,013,645	\$46,651,052			
			•	

Turbo Power Coach

Turbo Power Club

Amdinette

Amcoach

Amcoach

Turbo Cafe

Turbo Coach

20200

21000

21800

150-Even

151-Odd

170

170

Equipment Type: Scenario:	Evac Expected	Ultimate				
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$13,378	\$51,696
Coach Super	34000	6	4	40	\$7,091	\$32,568
Coach-HEP-HLV	39940	4	1	21	\$4,940	\$26,192
Lounge-HEP-HLV	39970	2	1	6	\$2,859	\$19,816
Bag Coach Super	31000	5	3	48	\$4,679	\$29,380
Sleeper Super	32000	12	3	34	\$10,269	\$51,696
Coach Super	34000	6	5	51	\$5,484	\$32,568
Trans Dorm Coach	39900	4	1	36	\$3,744	\$26,192
Sleeper 10-6	2400(30)	17	1	27	\$31,666	\$67,636
Amiounge II	28000	2	• 1	13	\$4,241	\$19,816
Coach (HDCP)	4000	3	1	21	\$6,056	\$23,004
Coach	4600	· 2	4	78	\$4,237	\$19,816
Horizon	54000	2	1	103	\$4,382	\$19,816
Dome Coach	9400	2	1	12	\$4,229	\$19,816
Slumbercoach 24-8	2080	32	1	16	\$34,693	\$115,456
Viewliner-Sleeper	2300	17	1	. 2	\$18,634	\$67,636
Sleeper 10-6	2400(30)	17	2	55	\$18,601	\$67,636
Amcoach II	25000	2	7	119	\$2,659	\$19,816
Amlounge II	28000	2	1	13	\$2,632	\$19,816
Amcafe	20000	2	1	45	\$4,296	\$19,816
Amclub	20100	2	3	24	\$4,236	\$19,816
Amcoach	21000	2	1	67	\$4,450	\$19,816
Met-Srvc Dinette	20900	2	1	13	\$4,403	\$19,816
Met-Srvc Club	20970		1	13	\$4,564	\$19,816
Met-Srvc Coach	21900	2 2	4	50	\$5,000	\$19,816

2

2

2

1

2

Total: **Entire Fleet:**  1

1

1

1

3

25

200

31

14

6

3

21 1,239

1,367

\$4,382

\$5,309

\$4,944

\$2,522

\$2,416

\$2,620

\$4,620

\$19,816

\$19,816

\$19,816

\$16,628

\$16,628

\$16,628

\$19,816

\$454,866 \$1,757,664 #1-2 Sunset Limited New Orleans/Los Ang \$286,805 \$1,317,195 #1-2 Sunset Limited New Orleans/Los Ang \$103,735 \$550,032 #1-2 Sunset Limited New Orleans/Los Ang \$17,157 \$118,896 #1-2 Sunset Limited New Orleans/Los Ang	eles eles
\$286,805 \$1,317,195 #1-2 Sunset Limited New Orleans/Los Ang \$103,735 \$550,032 #1-2 Sunset Limited New Orleans/Los Ang	eles eles
\$103,735 \$550,032 #1-2 Sunset Limited New Orleans/Los Ang	eles
· · · · · · · · · · · · · · · · · · ·	
\$224,598 \$1,410,240 #5-6 California Zephyr Chicago/Oakland	
\$349,130 \$1,757,664 #5-6 California Zephyr Chicago/Oakland	
\$277,223 \$1,646,493 #5-6 California Zephyr Chicago/Oakland	
\$134,775 \$942,912 #5-6 California Zephyr Chicago/Oakland	
\$856,882 \$1,830,230 #58 City of New Orleans New Orleans/Chicago	
\$53,017 \$247,700 #58 City of New Orleans New Orleans/Chicago	
\$127,176 \$483,084 #58 City of New Orleans New Orleans/Chicago	
\$330,492 \$1,545,648 #58 City of New Orleans New Orleans/Chicago	
\$451,381 \$2,041,048 #58 City of New Orleans New Orleans/Chicago	
\$50,742 \$237,792 #58 City of New Orleans New Orleans/Chicago	
\$555,080 \$1,847,296 #87-88 Silver Meteor New York City/Tampa	
\$37,267 \$135,272 #87-88 Silver Meteor New York City/Tampa	
\$1,021,949 \$3,715,922 #87-88 Silver Meteor New York City/Tampa	
\$316,430	
\$32,899	
\$193,308 \$891,720 #193 Benjamin-Franklin Boston/Philadelphia	
\$101,664 \$475,584 #193 Benjamin-Franklin Boston/Philadelphia	
\$295,923 \$1,317,764 #193 Benjamin-Franklin Boston/Philadelphia	
\$57,238	ork Cit
\$59,335	ork Cit
\$249,982 \$990,800 #200 Metroliner Washington DC/New \	ork Cit
\$109,539 \$495,400 #242 Hudson Highlander Albany/New York City	•
\$1,059,090 \$3,953,292 #242 Hudson Highlander Albany/New York City	
\$153,262 \$614,296 #242 Hudson Highlander Albany/New York City	
\$35,314 \$232,792 #250 Electric City Express Schnecetady/New Yor	k City
\$14,498 \$99,768 #250 Electric City Express Schnecetady/New Yor	k City
\$7,861 \$49,884 #250 Electric City Express Schnecetady/New Yor	k City
\$97,011 \$416,136 #250 Electric City Express Schnecetady/New Yor	k City
\$8,115,630 \$34,243,544	
\$8,954,049 \$37,781,214	

Railtech Equipment Type: WTS 8300 Scenario: Expected Typical Toilets Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car 3 Sleeper Super 32000 12 34 \$14.153 \$65.184 Coach Super 34000 6 4 40 \$9.364 \$32,592 1 ' Coach-HEP-HLV 39940 4 21 \$6.524 \$21.728 Lounge-HEP-HLV 39970 2 1 6 \$4.558 \$15.152 Bag Coach Super 31000 5 3 48 \$6.279 \$29,304 Sleeper Super 3 32000 12 34 \$10.953 \$65,184 Coach Super 34000 6 5 51 \$7.066 \$32,592 Trans Dorm Coach 39900 4 1 36 \$4,614 \$21.728 Sleeper 10-6 17 1 2400(30) 27 \$32,630 \$94,488 1 Amlounge II 28000 2 13 \$4,557 \$15.152 Coach (HDCP) 4000 3 21 \$6.331 \$18,440 1 Coach 4600 2 4 78 \$4.544 \$15.152 2 1 Horizon 54000 103 \$7.134 \$15.152 Dome Coach 9400 2 1 12 \$4,518 \$15,152 Slumbercoach 24-8 2080 32 1 16 \$36,571 \$173.824 Viewliner-Sleeper 2300 17 1 2 \$19,594 \$94,488 2 Sleeper 10-6 2400(30) 17 55 \$19,495 \$94.488 Amcoach II 25000 2 7 119 \$3.947 \$15,152 2 1 Amlounge II 28000 13 \$3,864 \$15,152 2 Amcafe 20000 1 45 \$4.723 \$15,152 Amclub 2 3 20100 24 \$4.541 \$15,152 Amcoach 2 1 21000 67 \$5,194 \$15,152 Met-Srvc Dinette 2 1 20900 13 \$5.050 \$15,152 Met-Srvc Club 20970 2 1 13 \$5,543 \$15,152 Met-Srvc Coach 21900 2 4 50 \$6,872 \$15,152 Amdinette 20200 2 1 25 \$4.985 \$15.152 Amcoach 21000 2 3 200 \$7,815 \$15,152 21800 2 1 Amcoach 31 \$6,702 \$15,152 **Turbo Power Coach** 150-Even 1 14 1 \$2.955 \$7.576 Turbo Power Club 151-Odd 1 1 6 \$2,632 \$7,576 Turbo Cafe 170 1 1 3 \$7,576 \$3,254 170 2 3 Turbo Coach 21 \$5,712 \$15,152

Entire Fleet: 1,367

1,239

- 51 173

Total:

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$481,200	\$2,216,256	#1-2	Sunset Limited	New Orleans/Los Angeles
\$378,729	\$1,318,165		Sunset Limited	New Orleans/Los Angeles
\$137,009	\$456,288		Sunset Limited	New Orleans/Los Angeles
\$27,350	\$90,912		Sunset Limited	New Orleans/Los Angeles
\$301,370	\$1,406,592		California Zephyr	Chicago/Oakland
\$372,401	\$2,216,256	#5-6	California Zephyr	Chicago/Oakland
\$357,240	\$1,647,707	#5-6	California Zephyr	Chicago/Oakland
\$166,112	\$782,208	#5-6	California Zephyr	Chicago/Oakland
\$882,966	\$2,556,845	#5-0 #58	' '	New Orleans/Chicago
\$56,963	\$189,400	#58	•	New Orleans/Chicago
\$132.948	\$387,240	#58	•	New Orleans/Chicago
\$354,432	\$1,181,856	#58		New Orleans/Chicago
\$734,763	\$1,560,656	#58	•	New Orleans/Chicago
\$54,215	\$181,824		•	New Orleans/Chicago
\$585,140	\$2,781,184		Silver Meteor	New York City/Tampa
\$39,188	\$188,976	#87-88	Silver Meteor	New York City/Tampa
\$1,071,039	\$5,191,171	#87-88	Silver Meteor	New York City/Tampa
\$469,661	\$1,803,088	#87-88	Silver Meteor	New York City/Tampa
\$48,299	\$189,400	#87-88	Silver Meteor	New York City/Tampa
\$212,536	\$681,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$108,978	\$363,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$345,394	\$1,007,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$65,654	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$72,053	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$343,588	\$757,600	#200	Metroliner	Washington DC/New York Cit
\$124,628	\$378,800	#242	Hudson Highlander	Albany/New York City
\$1,559,146	\$3,022,824		Hudson Highlander	Albany/New York City
\$207,755	\$469,712		Hudson Highlander	Albany/New York City
\$41,377	\$106,064	#250	•	Schnecetady/New York City
\$15,790	\$45,456	#250	• •	Schnecetady/New York City
\$9,763	\$22,728	#250	•	Schnecetady/New York City
\$119,945	\$318,192	#250	• •	Schnecetady/New York City
\$9,877,631	\$33,914,448	πΔΟΟ	Licenie Oity Express	OG medetady/New Tork Oily
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\$10,898,080 \$37,418,120

Equipment Type:	Monogram	Modified	Vacuum			
Scenario:	Unfavorable		1	•		
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$16,798	\$55,896
Coach Super	34000	6	4	40	\$9,262	\$39,168
Coach-HEP-HLV	39940	4	1	21	\$6,665	\$33,592
Lounge-HEP-HLV	39970	2	1	6	\$4,176	\$28,016
Bag Coach Super	31000	5	3	48	\$6,414	\$36,380
Sleeper Super	32000	12	3	34	\$13,228	\$55,896
Coach Super	34000	6	5	51	\$7,396	\$39,168
Trans Dorm Coach	39900	4	1	36	\$5,232	\$33,592
Sleeper 10-6	2400(30)	17	1	27	\$37,998	\$69,836
Amlounge II	28000	2	1	13	\$5,698	\$28,016
Coach (HDCP)	4000	3	1	21	\$7,831	\$30,804
Coach	4600	2	4	78	\$5,692	\$28,016
Horizon	54000	2	1	103	\$5,913	\$28,016
Dome Coach	9400	2	1	12	\$5,679	\$28,016
Slumbercoach 24-8	2080	32	1	16	\$42,463	\$111,656
Viewliner-Sleeper	2300	17	1	2	\$23,103	\$69,836
Sleeper 10-6	2400(30)	· 17	2	55	\$23,054	\$69,836
Amcoach II	25000	2	7	119	\$3,871	\$28,016
Amlounge II	28000	2	1	13	\$3,830	\$28,016
Amcafe	20000	2	1	45	\$5,781	\$28,016
Amclub	20100	2	3	24	\$5,690	\$28,016
Amcoach .	21000	2	1	67	\$6,016	\$28,016
Met-Srvc Dinette	20900	2	. 1	13	\$5,944	\$28,016
Met-Srvc Club	20970	2	1	13	\$6,189	\$28,016
Met-Srvc Coach	21900	2	4	50	\$6,851	\$28,016
Amdinette	20200	2	1	25	\$5,912	\$28,016
Amcoach	21000	2	3	200	\$7,322	\$28,016
Amcoach	21800	2	1	31	\$6,767	\$28,016
Turbo Power Coach	150-Even	1	1	14	\$3,711	\$25,228
Turbo Power Club	151-Odd	1	1	6	\$3,550	\$25,228
Turbo Cafe	170	1	1	3	\$3,860	\$25,228
Turbo Coach	170 ·	2	3	21	\$6,274	\$28,016
		Total:		1,239		
•		Entire Flee	ot:	1,367		•

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$571,147	\$1,900,464	#1-2	Sunset Limited	New Orleans/Los Angeles
\$374,597	\$1,584,128		Sunset Limited	New Orleans/Los Angeles
\$139,963	\$705,432		Sunset Limited	New Orleans/Los Angeles
\$25,057	\$168,096		Sunset Limited	New Orleans/Los Angeles
\$307,864	\$1,746,240	#5-6	California Zephyr	Chicago/Oakland
\$449,742	\$1,900,464		California Zephyr	Chicago/Oakland
\$373,922	\$1,980,160	#5-6	California Zephyr	Chicago/Oakland
\$188,362	\$1,209,312	#5-6	California Zephyr	Chicago/Oakland
\$1,028,224	\$1,889,762	#58	City of New Orleans	New Orleans/Chicago
\$71,229	\$350,200	#58	City of New Orleans	New Orleans/Chicago
\$164,448	\$646,884	#58	City of New Orleans	New Orleans/Chicago
\$443,965	\$2,185,248	#58	City of New Orleans	New Orleans/Chicago
\$609,014	\$2,885,648	#58	City of New Orleans	New Orleans/Chicago
\$68,146	\$336,192	#58	City of New Orleans	New Orleans/Chicago
\$679,409	\$1,786,496	#87-88	Silver Meteor	New York City/Tampa
\$46,207	\$139;672	#87-88	Silver Meteor	New York City/Tampa
\$1,266,574	\$3,836,790	#87-88	Silver Meteor	New York City/Tampa
\$460,699	\$3,333,904	#87-88	Silver Meteor	New York City/Tampa
\$47,877	\$350,200	#87-88	Silver Meteor	New York City/Tampa
\$260,147	\$1,260,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$136,566	\$672,384	#193	Benjamin-Franklin	Boston/Philadelphia
\$400,039	`\$1,863,064	#193	Benjamin-Franklin	Boston/Philadelphia
\$77,273	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$80,461	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$342,575	\$1,400,800	#200	Metroliner	Washington DC/New York Cit
\$147,790	\$700,400	#242	Hudson Highlander	Albany/New York City
\$1,460,644	\$5,589,192	#242	Hudson Highlander	Albany/New York City
\$209,771	\$868,496	#242	Hudson Highlander	Albany/New York City
\$51,960	\$353,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$21,301	\$151,368	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$11,581	\$75,684	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$131,745	\$588,336	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$10,648,298	\$43,187,344		,	
\$11,748,365	\$47,648,991			

**Equipment Type:** Self-Cont'd Recirc Monogram Scenario: Unfavorable **Toilets Typical** Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 3 32000 12 34 \$26,429 \$42,456 Coach Super 6 4 40 34000 \$13,386 \$21,228 Coach-HEP-HLV 39940 4 1 21 \$11,480 \$14,152 Lounge-HEP-HLV 39970 2 1 6 \$5,886 \$7,076 **Bag Coach Super** 5 3 31000 48 \$11,762 \$17,690 Sleeper Super 12 3 32000 34 \$22,891 \$42,456 Coach Super 6 5 51 34000 \$14,076 \$21,228 Trans Dorm Coach 39900 1 36 \$7,693 \$14,152 4 Sleeper 10-6 17 1 27 2400(30) \$52,201 \$60,146 Amlounge II 28000 2 1 13 \$6,290 \$7,076 Coach (HDCP) 4000 3 1 21 \$9.340 \$10,614 Coach 4600 2 4 78 \$6,287 \$7,076 Horizon 54000 2 1 103 \$6,396 \$7,076 2 1 Dome Coach 9400 12 \$6,280 \$7,076 Slumbercoach 24-8 2080 32 1 16 \$70,177 \$113,216 Viewliner-Sleeper 2300 17 1 2 \$37,308 \$60,146 Sleeper 10-6 17 2 \$37,283 2400(30) 55 \$60,146 2 7 \$5.729 Amcoach II 25000 119 \$7,076 Amlounge II 28000 2 1 13 \$4,481 \$7,076 Amcafe 20000 2 1 45 \$6,338 \$7,076 Amclub 20100 2 3 24 \$6,291 \$7,076 2 Amcoach 21000 1 67 \$6,458 \$7,076 2 Met-Srvc Dinette 20900 1 13 \$6.431 \$7,076 Met-Srvc Club 20970 2 1 13 \$6,560 \$7,076 Met-Srvc Coach 2 4 21900 50 \$6,909 \$7,076 2 . 1 25 Amdinette 20200 \$6,413 \$7,076 Amcoach 21000 2 3 200 \$7,157 \$7,076 2 21800 1 31 Amcoach \$6,865 \$7,076 Turbo Power Coach 1 1 14 150-Even \$3,326 \$3,538 Turbo Power Club 151-Odd 1 1 6 \$3,242 \$3,538 Turbo Cafe 170 1 1 3 \$3,538 \$3,404 Turbo Coach 170 2 3 \$6,600 21 \$7,076 Total: 1,239 **Entire Fleet:** 1.367

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Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$898,570			New Orleans/Los Angeles	
\$541,388	\$1,443,504 \$858,555		Sunset Limited Sunset Limited	New Orleans/Los Angeles
\$241,073	\$297,192		Sunset Limited	New Orleans/Los Angeles
\$35,316	\$42,456		Sunset Limited	New Orleans/Los Angeles
\$564.580	\$849,120	#1-2 #5-6		Chicago/Oakland
\$364,360 \$778,308	\$1,443,504		California Zephyr California Zephyr	•
\$778,308 \$711,639	\$1,073,193		California Zephyr	Chicago/Oakland Chicago/Oakland
\$276,965	\$509,472		California Zephyr	Chicago/Oakland
· · ·			• •	•
\$1,412,559 \$78,625	\$1,627,551	#58 #58	•	New Orleans/Chicago
\$76,625 \$196,150	\$88,450 \$222,894		•	New Orleans/Chicago
\$490,130	\$551,928		-	New Orleans/Chicago New Orleans/Chicago
\$658,762		#58	•	New Orleans/Chicago
\$75,365	\$84,912	#58	•	New Orleans/Chicago
\$1,122,838	\$1,811,456	#87-88	Silver Meteor	
\$74.615	\$120,292	#87-88	Silver Meteor	New York City/Tampa New York City/Tampa
\$2,048,343	\$3,304,421	#87-88	Silver Meteor	New York City/Tampa
\$681,793	\$842,044	#87-88	Silver Meteor	New York City/Tampa
\$56,009	\$88,450	#87-88	Silver Meteor	New York City/Tampa
\$285,202	\$318,420	#193	Benjamin-Franklin	Boston/Philadelphia
\$150,995	\$169,824	#193	Benjamin-Franklin	Boston/Philadelphia
\$429,431	\$470,554	#193	Benjamin-Franklin	Boston/Philadelphia
\$83,598	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$85,280	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$345,467	\$353,800	#200	Metroliner	Washington DC/New York Cit
\$160,337	\$176,900	#242	Hudson Highlander	Albany/New York City
\$1,427,887	\$1,411,662		Hudson Highlander	Albany/New York City
\$212,805	\$219,356	#242	Hudson Highlander	Albany/New York City
\$46,565	\$49.532		• •	Schnecetady/New York City
\$19,450	\$21,228	•	• •	Schnecetady/New York City
\$19, <del>1</del> 30	\$10,614			Schnecetady/New York City
\$138.604	\$148,596		• •	Schnecetady/New York City
\$14,339,101	\$19,522,684	πŁUU	LIGORIC ORY EXPIRES	OG III GOG LALLY TORK ORY
\$15,820,461	\$21,539,555			
4.010201.101	+= 1,000,000			

Equipment Type: Scenario:	Microphor Unfavorable	Gravity				
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$18,032	\$74,032
Coach Super	34000	6	4	40	\$10,145	\$42,304
Coach-HEP-HLV	39940	4	1	21	\$7,288	\$31,728
Lounge-HEP-HLV	39970	2	1	6	\$4,596	\$21,152
Bag Coach Super	31000	5	3	48	\$6,999	\$37,016
Sleeper Super	32000	12	3	34	\$14,394	\$74,032
Coach Super	34000	6	5	51	\$8,098	\$42,304
Trans Dorm Coach	39900	4	1	36	\$5,379	\$31,728
Sleeper 10-6	2400(30)	17	1	27	\$39,717	\$100,472
Amlounge II	28000	2	1	13	\$5,720	\$21,152
Coach (HDCP)	4000	3	1	21	\$7,945	\$26,440
Coach	4600	2	4	78	\$5,707	\$21,152
Horizon	54000	2	1	103	\$6,151	\$21,152
Dome Coach	9400	2	1	12	\$5,681	\$21,152
Slumbercoach 24-8	2080	32	1	16	\$46,080	\$179,792
Viewliner-Sleeper	2300	17	1	2	\$24,820	\$100,472
Sleeper 10-6	2400(30)	17	2	55	\$24,720	\$100,472
Amcoach II	25000	2	7	119	\$3,817	\$21,152
Amlounge II	28000	2	1	13	\$3,734	\$21,152
Amcafe	20000	2	1	45	\$5,886	\$21,152
Amclub	20100	2	3	24	\$5,704	\$21,152
Amcoach	21000	2	1	67	\$6,358	\$21,152
Met-Srvc Dinette	20900	2	1	13	\$6,214	\$21,152
Met-Srvc Club	20970	2	1	13	\$6,707	\$21,152
Met-Srvc Coach	21900	2	4	50	\$8,038	\$21,152
Amdinette	20200	2	1	25	\$6,149	\$21,152
Amcoach	21000	2	3	200	\$8,983	\$21,152
Amcoach	21800	2	1.	31	\$7,868	\$21,152
Turbo Power Coach	150-Even	1	1	14	\$3,788	\$15,864
Turbo Power Club	151-Odd	1 -	1.	6	\$3,464	\$15,864
Turbo Cafe	170 .	1	1.	3	\$4,087	\$15,864
Turbo Coach	170	2	3	21	\$6,876	\$21,152
	,	Total:		1,239		,
		Entire Flee	ot:	1,367		

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$613,079	\$2,517,088		Sunset Limited	New Orleans/Los Angeles
\$410,325	\$1,710,962		Sunset Limited	New Orleans/Los Angeles
\$153,058	\$666,288		Sunset Limited	New Orleans/Los Angeles
\$27,573	\$126,912		Sunset Limited	New Orleans/Los Angeles
\$335,945	\$1,776,768	#5-6	California Zephyr	Chicago/Oakland
\$489,382	\$2,517,088	#5-6	California Zephyr	Chicago/Oakland
\$409,394	\$2,138,702		California Zephyr	Chicago/Oakland
\$193,627	\$1,142,208	#5-6	California Zephyr	Chicago/Oakland
\$1,074,751	\$2,718,772	#58		New Orleans/Chicago
\$71,500	\$264,400	#58	City of New Orleans	New Orleans/Chicago
\$166,838	\$555,240	#58	City of New Orleans	New Orleans/Chicago
\$445,138	\$1,649,856	#58	City of New Orleans	New Orleans/Chicago
\$633,548	\$2,178,656	#58	City of New Orleans	New Orleans/Chicago
\$68,169	\$253,824	#58	City of New Orleans	New Orleans/Chicago
\$737,276	\$2,876,672	#87-88	Silver Meteor	New York City/Tampa
\$49,640	\$200,944	#87-88	Silver Meteor	New York City/Tampa
\$1,358,142	\$5,519,932	#87-88	Silver Meteor	New York City/Tampa
\$454,262	\$2,517,088	#87-88	Silver Meteor	New York City/Tampa
\$46,680	\$264,400	#87-88	Silver Meteor	New York City/Tampa
\$264,878	\$951,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$136,888	\$507,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$422,788	\$1,406,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$80,781	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$87,190	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$401,899	\$1,057,600	#200	Metroliner	Washington DC/New York Cit
\$153,716	\$528,800	#242	Hudson Highlander	Albany/New York City
\$1,792,077	\$4,219,824	#242	Hudson Highlander	Albany/New York City
\$243,900	\$655,712	#242	Hudson Highlander	Albany/New York City
\$53,031	\$222,096	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$20,782	\$95,184	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$12,262	\$47,592	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$144,401	\$444,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$11,552,918	\$42,282,848			•
\$12,746,439	\$46,651,052		8	

Equipment Type:	Evac	Ultimate				
Scenario:	Unfavorable					
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	<sup>'</sup> 12	3	34	\$16,547	\$51,696
Coach Super	34000	6	4	40	\$8,861	\$32,568
Coach-HEP-HLV	39940	4	. 1	21	\$6,227	\$26,192
Lounge-HEP-HLV	39970	2	1	6	\$3,685	\$19,816
Bag Coach Super	31000	5	3	48	\$6,008	\$29,380
Sleeper Super	32000	12	3	34	\$12,986	\$51,696
Coach Super	34000	6	5	51	\$7,012	\$32,568
Trans Dorm Coach	39900	4	1	36	\$4,833	\$26,192
Sleeper 10-6	2400(30)	17	1	27	\$37,867	\$67,636
Amlounge II	28000	2	1	13	\$5,241	\$19,816
Coach (HDCP)	4000	3	1	21	\$7,398	\$23,004
Coach	4600	2	4	78	\$5,236	\$19,816
Horizon	54000	2	1	103	\$5,424	\$19,816
Dome Coach	9400	2	1	12	\$5,225	\$19,816
Slumbercoach 24-8	2080	. 32	1	16	\$42,629	\$115,456
Viewliner-Sleeper	2300	17	1	2	\$22,972	\$67,636
Sleeper 10-6	2400(30)	17	2	55	\$22,930	\$67,636
Amcoach II	25000	2	7	119	\$3,425	\$19,816
Amlounge II	28000	2	1	13	\$3,390	\$19,816
Amcafe	20000	2	1	45	\$5,312	\$19,816
Amclub	20100	2	3	24	\$5,234	\$19,816
Amcoach	21000	2	1	67	\$5,511	\$19,816
Met-Srvc Dinette	20900	2	· 1	13	\$5,450	\$19,816
Met-Srvc Club	20970	2	1	13	\$5,659	\$19,816
Met-Srvc Coach	21900	2	4	50	\$6,223	\$19,816
Amdinette	20200	2	1	25	\$5,423	\$19,816
Amcoach	21000	2	3	200	\$6,624	\$19,816
Amcoach	21800	2	1	31	\$6,151	\$19,816
Turbo Power Coach	150-Even	1	1	14	\$3,208	\$16,628
Turbo Power Club	151-Odd	1	1	6	\$3,070	\$16,628
Turbo Cafe	170	1	1	3	\$3,335	\$16,628
Turbo Coach	170	2	3	21	\$5,731	\$19,816
		Total:	-	1,239	• • • • •	• •
·		Entire Flee	rt:	1,367		

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fieet	Number	Name	Destination
\$562,593	\$1,757,664	#1-2	Sunset Limited	New Orleans/Los Angeles
\$358,384	\$1,317,195	#1-2	Sunset Limited	New Orleans/Los Angeles
\$130,764	\$550,032	#1-2	Sunset Limited	New Orleans/Los Angeles
\$22,109	\$118,896	#1-2	Sunset Limited	New Orleans/Los Angeles
\$288,368	\$1,410,240	#5-6	California Zephyr	Chicago/Oakland
\$441,524	\$1,757,664	#5-6	California Zephyr	Chicago/Oakland
\$354,508	\$1,646,493	#5-6	California Zephyr	Chicago/Oakland
\$174,005	\$942,912	#5-6	California Zephyr	Chicago/Oakland
\$1,024,674	\$1,830,230	#58	City of New Orleans	New Orleans/Chicago
\$65,514	\$247,700	#58	City of New Orleans	New Orleans/Chicago
\$155,368	\$483,084	#58	City of New Orleans	New Orleans/Chicago
\$408,378	\$1,545,648	#58	City of New Orleans	New Orleans/Chicago
\$558,647	\$2,041,048	#58	City of New Orleans	New Orleans/Chicago
\$62,695	\$237,792	#58	City of New Orleans	New Orleans/Chicago
\$682,057	\$1,847,296	#87-88	Silver Meteor	New York City/Tampa
\$45,945	\$135,272	#87-88	Silver Meteor	New York City/Tampa
\$1,259,791	\$3,715,922	#87-88	Silver Meteor	New York City/Tampa
\$407,614	\$2,358,104	#87-88	Silver Meteor	New York City/Tampa
\$42,377	\$247,700	#87-88	Silver Meteor	New York City/Tampa
\$239,021	\$891,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$125,622	\$475,584	#193	Benjamin-Franklin	Boston/Philadelphia
\$366,506	\$1,317,764	#193	Benjamin-Franklin	Boston/Philadelphia
\$70,856	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$73,571	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$311,165	\$990,800	#200	Metroliner	Washington DC/New York Cit
\$135,569	\$495,400	#242	Hudson Highlander	Albany/New York City
\$1,321,413	\$3,953,292	#242	Hudson Highlander	Albany/New York City
\$190,686	\$614,296	#242	Hudson Highlander	Albany/New York City
\$44,909	\$232,792	#250	Electric City Express	Schnecetady/New York City
\$18,422	\$99,768	#250	Electric City Express	Schnecetady/New York City
\$10,004	\$49,884	#250	Electric City Express	Schnecetady/New York City
\$120,352	\$416,136	#250	Electric City Express	Schnecetady/New York City
\$10,073,411	\$34,243,544			÷
\$11,114,086	\$37,781,214			

Equipment Type: Scenario:	Railtech Unfavorable	WTS 83	00			
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$21,688	\$65,184
Coach Super	34000	6	4	40	\$11,688	\$32,592
Coach-HEP-HLV	39940	4	1	21	\$8,193	\$21,728
Lounge-HEP-HLV	39970	2	1	6	\$5,819	\$15,152
Bag Coach Super	31000	5	3	48	\$8,018	\$29,304
Sleeper Super	32000	12	3	34	\$16,687	\$65,184
Coach Super	34000	6	5	51	\$8,998	\$32,592
Trans Dorm Coach	39900	4	. 1	36	\$5,860	\$21,728
Sleeper 10-6	2400(30)	17	1	27	\$39,438	\$94,488
Amlounge II	28000	2	1	13	\$8,142	\$15,152
Coach (HDCP)	4000	3	1	21	\$7,786	\$18,440
Coach	4600	2	4	78	\$8,123	\$15,152
Horizon	54000	<u>,</u> 2	1	103	\$8,754	\$15,152
Dome Coach	9400	2	1	12	\$8,086	\$15,152
Slumbercoach 24-8	2080	32	.1	16	\$45,719	\$173,824
Viewliner-Sleeper	2300	17	1	2	\$24,538	\$94,488
Sleeper 10-6	2400(30)	17	2	55	\$24,397	<b>\$94,488</b> .
Amcoach II	25000	2	7	119	\$4,949	\$15,152
Amlounge II	28000	2	1	13	\$4,832	\$15,152
Amcafe	20000	2	1	45	\$5,925	\$15,152
Amclub	20100	. 2	3	24	\$5,666	\$15,152
Amcoach	21000	2	1	67	\$6,595	\$15,152
Met-Srvc Dinette	20900	2	1	13	\$6,390	\$15,152
Met-Srvc Club	20970	2	1	13	\$7,091	\$15,152
Met-Srvc Coach	21900	2	4	50	\$8,981	\$15,152
Amdinette	20200	2	1	25	\$6,298	\$15,152
Amcoach	21000	2	3	200	\$10,323	\$15,152
Amcoach	21800	2	1	31	\$8,739	\$15,152
Turbo Power Coach	150-Even	1	. 1	14	\$3,807	\$7,576
Turbo Power Club	151-Odd	1	1	6	\$3,347	\$7,576
Turbo Cafe	170	1	1	3	\$4,232	\$7,576
Turbo Coach	170	2	3	21	\$7,331	\$15,152
•	•	Total:		1,239	•	,
		Entire Flee	nt:	1,367		

Operating	Capital	Route	Routé	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$737,391	\$2,216,256	#1-2	Sunset Limited	New Orleans/Los Angeles
\$472,729	\$1,318,165	#1-2	Sunset Limited	New Orleans/Los Angeles
\$172,044	\$456,288		Sunset Limited	New Orleans/Los Angeles
\$34,916	\$90,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$384,863	\$1,406,592	#5-6	California Zephyr	Chicago/Oakland
\$567,358	\$2,216,256	#5-6	California Zephyr	Chicago/Oakland
\$454,918	\$1,647,707	#5-6	California Zephyr	Chicago/Oakland
\$210,969	\$782,208	#5-6	California Zephyr	Chicago/Oakland
\$1,067,195	\$2,556,845	#58	City of New Orleans	New Orleans/Chicago
\$101,772	\$189,400	#58	City of New Orleans	New Orleans/Chicago
\$163,510	\$387,240	#58	City of New Orleans	New Orleans/Chicago
\$633,607	\$1,181,856	#58	City of New Orleans	New Orleans/Chicago
\$901,647	\$1,560,656	#58	City of New Orleans	New Orleans/Chicago
\$97,033	\$181,824	#58	City of New Orleans	New Orleans/Chicago
\$731,507	\$2,781,184	#87-88	Silver Meteor	New York City/Tampa
\$49,077	\$188,976	#87-88	Silver Meteor	New York City/Tampa
\$1,340,379	\$5,191,171	#87-88	Silver Meteor	New York City/Tampa
\$588,976	\$1,803,088	#87-88	Silver Meteor	New York City/Tampa
\$60,395	\$189,400	#87-88	Silver Meteor	New York City/Tampa
\$266,625	\$681,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$135,978	\$363,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$438,548	\$1,007,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$83,076	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$92,178	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$449,058	\$757,600	#200	Metroliner	Washington DC/New York Cit
\$157,444	\$378,800	#242	Hudson Highlander	Albany/New York City
\$2,059,461	\$3,022,824	#242	Hudson Highlander	Albany/New York City
\$270,920	\$469,712	#242	Hudson Highlander	Albany/New York City
\$53,302	\$106,064	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$20,080	\$45,456	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$12,697	\$22,728	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$153,954	\$318,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$12,963,606	\$33,914,448			·
\$14,302,865	\$37,418,120			•
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Equipment Type: Scenario:	Monogram Favorable	Modified	Vacuum			
	Typical	Toilets	Cars	Cars in	Operating	Capita
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/C
Sleeper Super	32000	12	3	34	\$10,283	\$55,8
Coach Super	34000	6	4	40	\$5,441	\$39,1
Coach-HEP-HLV	39940	4	1	21	\$3,778	\$33,5
Lounge-HEP-HLV	39970	2	1	6	\$2,177	\$28,0
Bag Coach Super	31000	5	3	48	\$3,463	\$36,3
Sleeper Super	32000	12	3	34	\$7,617	\$55,8
Coach Super	34000	6	5	51	\$4,061	\$39,1
Trans Dorm Coach	39900	4	1	36	\$2,750	\$33,5
Sleeper 10-6	2400(30)	17	1	27	\$25,503	\$69,8
Amlounge II	28000	2	1	13	\$3,359	\$28,0
Coach (HDCP)	4000	3	1	21	\$4,823	\$30,8
Coach	4600	2	4	78	\$3,355	\$28,0
Horizon	54000	2	1	103	\$3,482	\$28,0
Dome Coach	9400	2	1	12	\$3,348	\$28,
Slumbercoach 24-8	2080	32	1	16	\$26,737	\$111,
Viewliner-Sleeper	2300	17	11	2	\$14,333	\$69,
Sleeper 10-6	2400(30)	17	2	55	\$14,304	\$69,
Amcoach II	25000	2	7	119	\$2,002	\$28,
Amlounge II	28000	2	1	13	\$1,978	\$28,0
Amcafe	20000	2	1	45	\$3,407	\$28,
Amclub	20100	2	3	24	\$3,354	\$28,
Amcoach	21000	2	1	67	\$3,541	\$28,
Met-Srvc Dinette	20900	2	· 1	13	\$3,500	\$28,
Met-Srvc Club	20970	. 2	1	13	\$3,641	\$28,
Met-Srvc Coach	21900	2	4	50	\$4,022	\$28,
Amdinette	20200	2	. 1	25	\$3,482	\$28,0
Amcoach	21000	2	3	200	\$4,292	\$28,
Amcoach	21800	2	1	31	\$3,973	\$28,
Turbo Power Coach	150-Even	· 1	1	14	\$1,978	\$25,
Turbo Power Club	151-Odd	1	1	6	\$1,886	\$25,
Turbo Cafe	170	1	. 1	3	\$2,064	\$25,
Turbo Coach	170	2	3	21	\$3,690	\$28,0
		Total:		1,239		
		Entire Flee	et:	1,367		
					¢ \$ #	

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$349,629	\$1,900,464	#1-2	Sunset Limited	New Orleans/Los Angeles
\$220,049	\$1,584,128	#1-2	Sunset Limited	New Orleans/Los Angeles
\$79,334	\$705,432	#1-2	Sunset Limited	New Orleans/Los Angeles
\$13,063	\$168,096	#1-2	Sunset Limited	New Orleans/Los Angeles
\$166,213	\$1,746,240	#5-6	California Zephyr	Chicago/Oakland
\$258,973	\$1,900,464	#5-6	California Zephyr	Chicago/Oakland
\$205,326	\$1,980,160	#5-6	California Zephyr	Chicago/Oakland
\$98,988	\$1,209,312	#5-6	California Zephyr	Chicago/Oakland
\$690,116	\$1,889,762	#58	City of New Orleans	New Orleans/Chicago
\$41,988	\$350,200	#58	City of New Orleans	New Orleans/Chicago
\$101,290	\$646,884	#58	City of New Orleans	New Orleans/Chicago
\$261,711	\$2,185,248	#58	City of New Orleans	New Orleans/Chicago
\$358,672	\$2,885,648	#58	City of New Orleans	New Orleans/Chicago
\$40,174	\$336,192	#58	City of New Orleans	New Orleans/Chicago
\$427,790	\$1,786,496	#87-88	Silver Meteor	New York City/Tampa
\$28,665	\$139,672	#87-88	Silver Meteor	New York City/Tampa
\$785,871	\$3,836,790	#87-88	Silver Meteor	New York City/Tampa
\$238,230	\$3,333,904	#87-88	Silver Meteor	New York City/Tampa
\$24,728	\$350,200	#87-88	Silver Meteor	New York City/Tampa
\$153,294	\$1,260,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$80,504	\$672,384	#193	Benjamin-Franklin	Boston/Philadelphia
\$235,502	\$1,863,064	#193	Benjamin-Franklin	Boston/Philadelphia
\$45,503	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$47,336	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$201,094	\$1,400,800	#200	Metroliner	Washington DC/New York Cit
\$87,040	\$700,400	#242	Hudson Highlander	Albany/New York City
\$856,266	\$5,589,192	#242	Hudson Highlander	Albany/New York City
\$123,169	\$868,496	#242	Hudson Highlander	Albany/New York City
\$27,697	\$353,192	#250	Electric City Express	Schnecetady/New York City
\$11,314	\$151,368	#250	Electric City Express	Schnecetady/New York City
\$6,192	\$75,684	#250	Electric City Express	Schnecetady/New York City
\$77,483	\$588,336	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$6,343,200	\$43,187,344		-	,
\$6,998,511	\$47,648,991			

Equipment Type:		Monogram	Self-Con	t'd Recirc			
	Scenario:	Favorable					
		Typical	Toilets	Cars	Cars in	Operating	Capital
	Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
	Sleeper Super	32000	12	3	34	\$15,293	\$42,456
	Coach Super	34000	. 6	4	40	\$7,775	\$21,228
	Coach-HEP-HLV	39940	4	1	21	\$7,100	\$14,152
	Lounge-HEP-HLV	39970	2	1	6	\$3,660	\$7,076
	Bag Coach Super	31000	5	3	48	\$6,935	\$17,690
	Sleeper Super	32000	12	3	34	\$12,640	\$42,456
	Coach Super	34000	6	5	51	\$8,293	\$21,228
	Trans Dorm Coach	39900	4	1	36	\$4,261	\$14,152
	Sleeper 10-6	2400(30)	17	1	27	\$32,735	\$60,146
	Amlounge II	28000	2	1	13	\$3,963	\$7,076
	Coach (HDCP)	4000	3	1	21	\$5,873	\$10,614
	Coach	4600	2	4	78	\$3,960	\$7,076
	Horizon	54000	2	1	103	\$4,042	\$7,076
	Dome Coach	9400	2	1	12	\$3,956	\$7,076
	Slumbercoach 24-8	2080	32	1	16	\$40,557	\$113,216
	Viewliner-Sleeper	2300	17	1	2	\$21,565	\$60,146
	Sleeper 10-6	2400(30)	17	2	55	\$21,547	\$60,146
	Amcoach II	25000	2	7	119	\$3,542	\$7,076
	Amlounge II	28000	· 2	1	13	\$2,606	\$7,076
	Amcafe	20000	2	1	45	\$3,999	\$7,076
	Amclub	20100	2	. 3	24	\$3,964	\$7,076
	Amcoach	21000	2	1	67	\$4,088	\$7,076
	Met-Srvc Dinette	20900	2	1	13	\$4,068	\$7,076
	Met-Srvc Club	20970	. 2	1	13	\$4,165	\$7,076
	Met-Srvc Coach	21900	. 2	4	50	\$4,427	\$7,076
	Amdinette	20200	2	1	25	\$4,055	\$7,076
	Amcoach	21000	2	, <b>3</b>	200	\$4,613	\$7,076
	Amcoach	21800	2	1	31	\$4,394	\$7,076
	Turbo Power Coach	150-Even	1	1	14	\$2,117	\$3,538
	Turbo Power Club	151-Odd	• 1	1	6	\$2,054	\$3,538
	Turbo Cafe	170	1	1	3	\$2,176	\$3,538
	Turbo Coach	170	2	3	21	\$4,195	\$7,076
			Total:		1,239		
			Entire Flee	it:	1,367		

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination	
\$519,959	\$1,443,504	#1-2	Sunset Limited	New Orleans/Los Angeles	
\$314,464	\$858,555	#1-2	Sunset Limited	New Orleans/Los Angeles	
\$149,105	\$297,192	#1-2	Sunset Limited	New Orleans/Los Angeles	
\$21,958	\$42,456	#1-2	Sunset Limited	New Orleans/Los Angeles	
\$332,865	\$849,120	#5-6	California Zephyr	Chicago/Oakland	
\$429,762	\$1,443,504	#5-6	California Zephyr	Chicago/Oakland	
\$419,259	\$1,073,193	#5-6	California Zephyr	Chicago/Oakland	
\$153,382	\$509,472	#5-6	California Zephyr	Chicago/Oakland	
\$885,819	\$1,627,551	#58	City of New Orleans	<u>-</u>	
\$49,534	\$88,450	#58	•	New Orleans/Chicago	
\$123,338	\$222,894	#58	•	New Orleans/Chicago	
\$308,908	\$551,928	#58	•	New Orleans/Chicago	
\$416,333	\$728,828	#58	City of New Orleans	•	
\$47,467	\$84,912	#58	•	New Orleans/Chicago	
\$648,913	\$1,811,456	#87-88	Silver Meteor	New York City/Tampa	
\$43,131	\$120,292	#87-88	Silver Meteor	New York City/Tampa	
\$1,183,796	\$3,304,421	#87-88	Silver Meteor	New York City/Tampa	
\$421,530	\$842,044	#87-88	Silver Meteor	New York City/Tampa	
\$32,572	\$88,450	#87-88	Silver Meteor	New York City/Tampa	
\$179,937	\$318,420	#193	Benjamin-Franklin	Boston/Philadelphia	
\$95,132	\$169,824	#193	Benjamin-Franklin	Boston/Philadelphia	
\$271,882	\$470,554	#193	Benjamin-Franklin	Boston/Philadelphia	
\$52,887	\$91,988	#200	Metroliner	•	
\$54,148	\$91,988	#200	Metroliner	Washington DC/New York Cit	
\$221,363	\$353,800	#200	Metroliner	Washington DC/New York Cit Washington DC/New York Cit	
				•	
\$101,384	\$176,900 \$1,411,660	#242 #242	Hudson Highlander	Albany/New York City	
\$920,342	\$1,411,662		Hudson Highlander	Albany/New York City	
\$136,206	\$219,356	#242	Hudson Highlander	Albany/New York City	
\$29,640	\$49,532	#250	• •	Schnecetady/New York City	
\$12,323	\$21,228	#250	• •	Schnecetady/New York City	
\$6,527	\$10,614 \$148,506	#250	•	Schnecetady/New York City	
\$88,103	\$148,596 \$10,500,694	#250	Electric City Express	Schnecetady/New York City	
\$8,671,971 \$9,567,864	\$19,522,684 \$21,539,555				

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Equipment Type: Scenario:	Microphor Favorable	Gravity				
ocenano.	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist		Cost/Car	Capital Cost/Car
• •	32000	•	3			
Sleeper Super Coach Super	34000	12 6	4	34 40	\$10,601 \$5,698	\$74,032
Coach-HEP-HLV		4	1			\$42,304
•	39940	2	1	21 6	\$3,976	\$31,728
Lounge-HEP-HLV	39970				\$2,366	\$21,152
Bag Coach Super	31000	5	3	48	\$3,785	\$37,016
Sleeper Super	32000	12	3	34	\$7,904	\$74,032
Coach Super	34000	6	5	51	\$4,267	\$42,304
Trans Dorm Coach	39900	4	1	36	\$2,828	\$31,728
Sleeper 10-6	2400(30)	17	1	27	\$25,883	\$100,472
Amlounge II	28000	2	1	13	\$3,444	\$21,152
Coach (HDCP)	4000	3	1	21	\$4,918	\$26,440
Coach	4600	2	4	78	\$3,437	\$21,152
Horizon	54000	2	1	103	\$3,664	\$21,152
Dome Coach	9400	2	1	12	\$3,424	\$21,152
Slumbercoach 24-8	2080	32	1	16	\$27,502	\$179,792
Viewliner-Sleeper	2300	17	1	2	\$14,711	\$100,472
Sleeper 10-6	`2400(30)	17	2	55	\$14,660	\$100,472
Amcoach II	25000	2	7	119	\$2,053	\$21,152
Amlounge II	28000	2	1	13	\$2,010	\$21,152
· Amcafe	20000	2	1	45	\$3,529	\$21,152
Amclub	20100	2	3	24	\$3,435	\$21,152
Amcoach	21000	2	1	67	\$3,770	\$21,152
Met-Srvc Dinette	20900	2	1	13	\$3,697	\$21,152
Met-Srvc Club	20970	2	1	13	\$3,949	\$21,152
Met-Srvc Coach	21900	2	4	50	\$4,631	\$21,152
Amdinette	20200	2 .	1	25	\$3,663	\$21,152
Amcoach	21000	2	3	200	\$5,115	\$21,152
Amcoach	21800	2	1	31	\$4,544	\$21,152
Turbo Power Coach	150-Even	1	1	14	\$2,119	\$15,864
Turbo Power Club	151-Odd	1	1	6	\$1,953	\$15,864
Turbo Cafe	170	1	1	3	\$2,272	\$15,864
Turbo Coach	170	2	3	21	\$4,036	\$21,152
		Total:	_	1,239	* *** ***	,
	·	Entire Flee	ıt:	1,367		*

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$360,423	\$2,517,088	•	Sunset Limited	New Orleans/Los Angeles
\$230,456	\$1,710,962		Sunset Limited	New Orleans/Los Angeles
\$83,504	\$666,288		Sunset Limited	New Orleans/Los Angeles
\$14,198	\$126,912		Sunset Limited	New Orleans/Los Angeles
\$181,663	\$1,776,768	#5-6	California Zephyr	Chicago/Oakland
\$268,736		#5-6	• • •	
\$205,736 \$215,720	\$2,517,088 \$2,138,702		California Zephyr California Zephyr	Chicago/Oakland Chicago/Oakland
\$101,808	\$1,142,208		California Zephyr	Chicago/Oakland
•				•
\$700,398	\$2,718,772		•	New Orleans/Chicago
\$43,047	\$264,400	#58	•	New Orleans/Chicago
\$103,284	\$555,240	#58	-	New Orleans/Chicago
\$268,089	\$1,649,856		•	New Orleans/Chicago
\$377,437	\$2,178,656	#58 #50	•	New Orleans/Chicago
\$41,084	\$253,824			New Orleans/Chicago
\$440,030	\$2,876,672	-	Silver Meteor	New York City/Tampa
\$29,423	\$200,944		Silver Meteor	New York City/Tampa
\$805,445	\$5,519,932		Silver Meteor	New York City/Tampa
\$244,258	\$2,517,088		Silver Meteor	New York City/Tampa
\$25,126	\$264,400		Silver Meteor	New York City/Tampa
\$158,798	\$951,840		Benjamin-Franklin	Boston/Philadelphia
\$82,449	\$507,648		Benjamin-Franklin	Boston/Philadelphia
\$250,726	\$1,406,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$48,057	\$274,976		Metroliner	Washington DC/New York Cit
\$51,339	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$231,540	\$1,057,600	#200	Metroliner	Washington DC/New York Cit
\$91,581	\$528,800	#242	Hudson Highlander	Albany/New York City
\$1,020,374	\$4,219,824	#242	Hudson Highlander	Albany/New York City
\$140,852	\$655,712	#242	Hudson Highlander	Albany/New York City
\$29,666	\$222,096	#250	Electric City Express	Schnecetady/New York City
\$11,718	\$95,184	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$6,817	\$47,592	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$84,753	\$444,192	#250	Electric City Express	Schnecetady/New York City
\$6,742,796	\$42,282,848			•
\$7,439,389	\$46,651,052			
	•			

Equipment Type: Scenario:	Evac Favorable	Ultimate				
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$10,222	\$51,696
Coach Super	34000	6	4	40	\$5,343	\$32,568
Coach-HEP-HLV	39940	4	1	21	\$3,673	\$26,192
Lounge-HEP-HLV	39970	2	1	6	\$2,059	\$19,816
Bag Coach Super	31000	5	3	48	\$3,367	\$29,380
Sleeper Super	32000	12	3	34	\$7,561	\$51,696
Coach Super	34000	6	5	51	\$3,971	\$32,568
Trans Dorm Coach	39900	4	1	36	\$2,663	\$26,192
Sleeper 10-6	2400(30)	17	1	27	\$25,472	\$67,636
Amlounge II	28000	2	. 1	13	\$3,256	\$19,816
Coach (HDCP)	<b>4000</b>	3	1	21	\$4,726	\$23,004
Coach	4600	2	4	78	\$3,252	\$19,816
Horizon	54000	2	1	103	\$3,365	\$19,816
Dome Coach	9400	2	1	12	\$3,246	\$19,816
Slumbercoach 24-8	2080	32	1	16	\$26,764	\$115,456
Viewliner-Sleeper	2300	17	1	2	\$14,301	\$67,636
Sleeper 10-6	2400(30)	17	2	55	\$14,276	\$67,636
Amcoach II	25000	2	7	119	\$1,904	\$19,816
Amlounge İl	28000	2	1	13	\$1,883	\$19,816
Amcafe	20000	2	1	45	\$3,298	\$19,816
Amclub	20100	2	3	24	\$3,252	\$19,816
Amcoach	21000	2	1	67	\$3,417	\$19,816
Met-Srvc Dinette	20900	2	1	13	\$3,381	\$19,816
Met-Srvc Club	20970	2	1	13	\$3,505	\$19,816
Met-Srvc Coach	21900	2	4	50	\$3,842	\$19,816
Amdinette	20200	2	1	25	\$3,364	\$19,816
Amcoach	21000	2	3	200	\$4,081	\$19,816
Amcoach	21800	2	1	31	\$3,799	\$19,816
Turbo Power Coach	150-Even	1	1	14	\$1,859	\$16,628
Turbo Power Club	151-Odd	1	· 1	. 6	\$1,777	\$16,628
Turbo Cafe	170	1	1	3	\$1,935	\$16,628
Turbo Coach	170	2	.3	21	\$3,548	\$19,816
		Total:		1,239		-
	•	Entire Flee	t:	1,367		

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Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$347,565	\$1,757,664	#1-2	Sunset Limited	New Orleans/Los Angeles
\$216,090	\$1,317,195	#1-2	Sunset Limited	New Orleans/Los Angeles
\$77,137	\$550,032	#1-2	Sunset Limited	New Orleans/Los Angeles.
\$12,351	\$118,896	#1-2	Sunset Limited	New Orleans/Los Angeles
\$161,639	\$1,410,240	#5-6	California Zephyr	Chicago/Oakland
\$257,060	\$1,757,664	#5-6	California Zephyr	Chicago/Oakland
\$200,760	\$1,646,493	#5-6	California Zephyr	Chicago/Oakland
\$95,858	\$942,912	#5-6	California Zephyr	Chicago/Oakland
\$689,262	\$1,830,230	#58	City of New Orleans	New Orleans/Chicago
\$40,697	\$247,700	#58	City of New Orleans	New Orleans/Chicago
\$99,251	\$483,084	#58	City of New Orleans	New Orleans/Chicago
\$253,692	\$1,545,648	#58	City of New Orleans	New Orleans/Chicago
\$346,564	\$2,041,048	#58	City of New Orleans	New Orleans/Chicago
\$38,950	\$237,792	#58	City of New Orleans	New Orleans/Chicago
\$428,222	\$1,847,296	#87-88	Silver Meteor	New York City/Tampa
\$28,603	\$135,272	#87-88	Silver Meteor	New York City/Tampa
\$784,330	\$3,715,922	#87-88	Silver Meteor	New York City/Tampa
\$226,539	\$2,358,104	#87-88	Silver Meteor	New York City/Tampa
\$23,534	\$247,700	#87-88	Silver Meteor	New York City/Tampa
\$148,400	\$891,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$78,039	\$475,584	#193	Benjamin-Franklin	Boston/Philadelphia
\$227,228	\$1,317,764	#193	Benjamin-Franklin	Boston/Philadelphia
\$43,948	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$45,568	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$192,084	\$990,800	#200	Metroliner	Washington DC/New York Cit
\$84,103	\$495,400	#242	Hudson Highlander	Albany/New York City
\$814,061	\$3,953,292	#242	Hudson Highlander	Albany/New York City
\$117,758	\$614,296	#242	Hudson Highlander	Albany/New York City
\$26,029	\$232,792	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$10,664	\$99,768	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$5,805	\$49,884	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$74,509	\$416,136	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$6,196,299	\$34,243,544			
\$6,836,433	\$37,781,214			

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Equipa Scena	ment Type:	Railtech Favorable	WTS 83	00	•		
		Typical	Toilets	Cars	Cars in	Operating	Capital
	ar Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
•	r Super	32000	12	3	34	\$10,607	\$65,184
Coach	•	34000	. 6	4	40	\$7,160	\$32,592
	HEP-HLV	39940	4	1.		\$4,971	\$21,728
_	-HEP-HLV	39970	2	1	6	\$3,434	\$15,152
•	ach Super	31000	5	. 3	48	\$4,634	\$29,304
Sleepe	•	32000	12	3	34	\$7,885	\$65,184
Coach	Super	34000	. 6	5	51.	\$5,225	\$32,592
Trans D	Oorm Coach	39900	4	1	36	\$3,429	\$21,728
Sleeper	r 10-6	2400(30)	17	1	27	\$25,857	\$94,488
Amloun	ige II	28000	. 2	1	13	\$3,505	\$15,152
Coach	(HDCP)	4000	3	1	21	\$4,947	\$18,440
Coach		4600	2	4	78	\$3,496	\$15,152
Horizon	1	54000	2	1	103	\$5,647	\$15,152
Dome (	Coach	9400	2	1	12	\$3,477	\$15,152
Slumbe	rcoach 24-8	2080	32	1	16	\$27,465	\$173,824
Viewlin	er-Sleeper	2300	17	1	2	\$14,685	\$94,488
Sleeper	r 10-6	2400(30)	17	2	55	\$14,615	\$94,488
Amcoa	ch II	25000	2	7	119	\$3,005	\$15,152
Amloun	ige II	28000	2	1	13	\$2,951	\$15,152
Amcafe	•	20000 •	2	1	45	\$3,621	\$15,152
Amclub	)	20100	2	3	24	\$3,493	\$15,152
Amcoa	ch	21000	2	1	67	\$3,952	\$15,152
Met-Srv	c Dinette	20900	2	1	13	\$3,851	\$15,152
Met-Srv	c Club	20970	2	1	13	\$4,197	\$15,152
Met-Srv	vc Coach	21900	2	4	50	\$5,130	\$15,152
Amdine	ette	20200	2	1	25	\$3,805	\$15,152
Amcoa	ch	21000	2	3	200	\$5,793	\$15,152
Amcoa	ch	21800	2	• 1	31	\$5,011	\$15,152
Turbo F	ower Coach	150-Even	1	1	14	\$2,228	\$7,576
Turbo F	Power Club	151-Odd	1	1	6	\$2,000	\$7,576
Turbo (	Cafe	170	1	1	3	\$2,438	\$7,576
Turbo (	Coach	170	2	3	21	\$4,316	\$15,152
			Total:		1,239	,	
			Entire Flee	et:	1,367	•	
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Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$360,648	\$2,216,256	#1-2	Sunset Limited	New Orleans/Los Angeles
\$289,563	\$1,318,165	#1-2	Sunset Limited	New Orleans/Los Angeles
\$104,384	\$456,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$20,607	\$90,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$222,422	\$1,406,592	#5-6	California Zephyr	Chicago/Oakland
\$268,098	\$2,216,256	#5-6	California Zephyr	Chicago/Oakland
\$264,166	\$1,647,707	#5-6	California Zephyr	Chicago/Oakland
\$123,438	\$782,208	#5-6	California Zephyr	Chicago/Oakland
\$699,703	\$2,556,845	#58	City of New Orleans	New Orleans/Chicago
\$43,809	\$189,400	#58	City of New Orleans	New Orleans/Chicago
\$103,886	\$387,240	#58	City of New Orleans	New Orleans/Chicago
\$272,657	\$1,181,856	#58	City of New Orleans	New Orleans/Chicago
\$581,598	\$1,560,656	#58	City of New Orleans	New Orleans/Chicago
\$41,727	\$181,824	#58	City of New Orleans	New Orleans/Chicago
\$439,434	\$2,781,184	#87-88	Silver Meteor	New York City/Tampa
\$29,369	\$188,976	#87-88	Silver Meteor	New York City/Tampa
\$802,945	\$5,191,171	#87-88	Silver Meteor	New York City/Tampa
\$357,587	\$1,803,088	#87-88	Silver Meteor	New York City/Tampa
\$36,884	\$189,400	#87-88	Silver Meteor	New York City/Tampa
\$162,959	\$681,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$83,840	\$363,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$262 <u>,</u> 806	\$1,007,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$50,065	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$54,559	\$196,976	#200	Metroliner	Washington DC/New York Cit
<b>\$256,511</b> .	\$757,600	#200	Metroliner	Washington DC/New York Cit
\$95,134	\$378,800	#242	Hudson Highlander	Albany/New York City
\$1,155,659	\$3,022,824	#242	Hudson Highlander	Albany/New York City
\$155,336	\$469,712	#242	Hudson Highlander	Albany/New York City
\$31,189	\$106,064	#250	Electric City Express	Schnecetady/New York City
\$12,002	\$45,456	#250	Electric City Express	Schnecetady/New York City
\$7,313	\$22,728	#250	Electric City Express	Schnecetady/New York City
\$90,627	\$318,192	#250	Electric City Express	Schnecetady/New York City
\$7,480,925	\$33,914,448			
\$8,253,773	\$37,418,120			•

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C2 Cost Details, Expected Scenario, Each Toilet System

C2.1 Sunset Limited, New Orleans-Los Angeles

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours:

43.00

Expected Trips per Day: Manufacturer:

Equipment:

Monogram Modified Vacuum

Scenario:

Expected

Casch Stuper   Casch HEP-HLV   Sleeper Staper   Cannote-HEP-HLV   NA   NA   NA   Capacity (# people) - seated   75   72   44   86   NA   NA   NA   Capacity (# people) - seated   8   4   12   2   2   NA   NA   NA   Capacity (# people) - seated   8   4   12   2   2   NA   NA   NA   NA   Capacity (# people) - seated   75   72   44   86   NA   NA   NA   NA   NA   NA   NA   N	* All data on per car basis (unless noted of	otherwise)					
Cagacity (# people) - sealed							
Toilets per car         6         4         12         2         NA         NA           Average persons/toilet on train         12.5         18.0         3.7         43.0         NA         NA           Car Waste Data (per car)         Black Water:           Human Waste/day (gals)         33.68         32.33         19.76         38.61         NA         NA           Flushes/Person-day         7.00         7.07         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.7         7.	Quantity of cars	4	1	3	1	NA	NA
Black Water:   Human Waste/day (gals)   33.68   32.33   19.76   38.61   NA   NA   # Flushes/Person-day   7.00   7.00   7.00   7.00   7.00   7.00   7.00     Flushes/Person-day   7.70   7.7   7.7   7.7   7.7   7.7   7.7   7.7     Flush Fluids/flush (gals)   0.063   0.063   0.063   0.063   0.063   0.063   0.063     Flushes/Person-day   7.01   67.3   0.063							
Black Water:   Human Waste/day (gals)   33.68   32.33   19.76   38.61   NA   NA   Flushas/Person-day   7.00   7.	Average persons/toilet on train	12.5	18.0	3.7	43.0	NA.	NA
Black Water:   Human Waste/day (gals)   33.68   32.33   19.76   38.61   NA   NA   Flushas/Person-day   7.00   7.							
Human Waste/day (gals) 33.68 32.33 19.76 38.61 NA NA #Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.0	Car Waste Data (per car)			,			
# Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.0	Black Water:						
Flush efficiency adjustment	Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.	# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush Fluids/flush (gals) 0.063 0.06	Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Flush Fluids/day (gals) 36.4 34.9 21.3 41.7 NA NA  Capacity Req'd/day (gals) 70.1 67.3 41.1 80.3 NA NA  Adj. Capacity Req'd w/ Buffer 87.6 84.1 51.4 100.4 NA NA  Tank Capacity per Car (gals) 235 235 235 235 235 235 235  Continuous Service Hours Supported 64 67 110 56 NA NA NA  As a percentage of 72 hours 89% 93% 152% 78% NA NA  Probable Service Hours per Day 24 24 24 24 24 24 24 24 24  Service Days Supported 2.7 2.8 4.6 2.3 NA NA  As a percentage of 3 days 89.45% 93.18% 152.47% 78.01% NA NA  Consecutive Trips before pumpout 1.0 1.0 2.0 1.0 NA NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$15,000 \$10,000 \$30,000 \$5,000 NA NA  Total Equip Cost \$36,000 \$31,000 \$51,000 \$26,000 NA NA  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$1,1728 \$1,152 \$3,456 \$576 NA NA  Total Installation Cost \$3,168 \$2,592 \$4,896 \$2,016 NA	Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Capacity Req'd/day (gals) 70.1 67.3 41.1 80.3 NA NA Adj. Capacity Req'd w Buffer 87.6 84.1 51.4 100.4 NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 235 235 235 235	Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Adj. Capacity Req'd w/ Buffer       87.6       84.1       51.4       100.4       NA       NA         Tank Capacity per Car (gals)       235       24       24       24       24       24       24       24       24	Flush Fluids/day (gals)	36.4	34.9	21.3	41.7	NA	NA
Tank Capacity per Car (gals)         235         235         235         235         235         235           Continuous Service Hours Supported As a percentage of 72 hours         64         67         110         56         NA         NA           As a percentage of 72 hours         89%         93%         152%         78%         NA         NA           Probable Service Hours per Day         24	Capacity Req'd/day (gals)	70.1	67.3	41.1	80.3	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours         64 89%         67 93%         110 152%         56 78%         NA N	Adj. Capacity Req'd w/ Buffer	87.6	84.1	51.4	100.4	NA ·	NA
As a percentage of 72 hours	Tank Capacity per Car (gals)	235	235	235	235	235	235
Service Days Supported         2.7         2.8         4.6         2.3         NA         NA           As a percentage of 3 days         89.45%         93.18%         152.47%         78.01%         NA         NA           Consecutive Trips before pumpout         1.0         1.0         2.0         1.0         NA         NA           CAPITAL COSTS         Collection System per Car         \$21,000	Continuous Service Hours Supported As a percentage of 72 hours						
As a percentage of 3 days 89.45% 93.18% 152.47% 78.01% NA NA  Consecutive Trips before pumpout 1.0 1.0 2.0 1.0 NA NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$15,000 \$10,000 \$30,000 \$5,000 NA NA  - Total Equip Cost \$36,000 \$31,000 \$51,000 \$26,000 NA NA NA  Equipment Installation  Collection System per Car \$1,440 \$1	Probable Service Hours per Day	24	24	24	24	24	24
Consecutive Trips before pumpout         1.0         1.0         2.0         1.0         NA         NA           CAPITAL COSTS         Collection System per Car         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$10,000         \$30,000         \$5,000         NA	Service Days Supported	2.7	2.8	4.6	2.3	NA	NA
CAPITAL COSTS         Collection System per Car       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$21,000       \$1,000	As a percentage of 3 days	89.45%	93.18%	152.47%	78.01%	NA	NA
Collection System per Car         \$21,000         \$20,000         \$10,0	Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
Toilet Cost per Car         \$15,000         \$10,000         \$30,000         \$5,000         NA         NA           - Total Equip Cost         \$36,000         \$31,000         \$51,000         \$26,000         NA         NA           Equipment Installation         Collection System per Car         \$1,440         \$1	CAPITAL COSTS						
- Total Equip Cost \$36,000 \$31,000 \$51,000 \$26,000 NA NA Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$1,728 \$1,152 \$3,456 \$576 NA NA CARRELL TOTAL Installation Cost \$3,168 \$2,592 \$4,896 \$2,016 NA NA	Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Equipment Installation         Collection System per Car       \$1,440	Toilet Cost per Car	<u>\$15,000</u>	<u>\$10,000</u>	\$30,000	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>
Collection System per Car         \$1,440	- Total Equip Cost	\$36,000	\$31,000	\$51,000	\$26,000	NA	NA
Toilet Cost per Car         \$1,728         \$1,152         \$3,456         \$576         NA         NA           - Total Installation Cost         \$3,168         \$2,592         \$4,896         \$2,016         NA         NA	Equipment Installation						
Toilet Cost per Car         \$1,728         \$1,152         \$3,456         \$576         NA         NA           - Total Installation Cost         \$3,168         \$2,592         \$4,896         \$2,016         NA         NA	Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
- Total Installation Cost \$3,168 \$2,592 \$4,896 \$2,016 NA NA		<u>\$1,728</u>	<u>\$1,152</u>	\$3,456	<u>\$576</u>	<u>NA</u>	<u>NA</u>
Total Capital Cost \$39,168 \$33,592 \$55,896 \$28,016 NA NA	· · · · · · · · · · · · · · · · · · ·	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Applies Applies Applies Applies Applies Applies	Total Capital Cost	\$39,168	\$33,592	\$55,896	\$28,016	NA	NA

Sunset Limited

#1-2

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours: Expected Trips per Day: 43.00

Manufacturer:

Monogram

Equipment:

Modified Vacuum

* All data on per car basis (unless noted oth	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	<b>NA</b> - <b>NA</b>	NA NA
OPERATING COSTS		<u> </u>	3,00,00,00,00		<del></del>	
Non-Trip Related Costs:  Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	9432 <u>3</u>	\$200 <u>3</u>	3		3	3
Servicing Cost/Year	\$1,296	\$864	\$2,592	<u>3</u> \$432	NA NA	NA NA
Annual spare parts cost per yr	\$1,080	\$930	\$1,53 <u>0</u>	\$780	NA	NA NA
Total- Opring Non-Trip Related	\$2,376	\$1,794	\$4,122	\$1,212	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal				•		
- Pump out Cost	\$0.70	\$0.67	\$0.41	\$0.80	NA	NA
- Pump out minutes	1.17	1.12	0.69	1.34	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	. NA
- Waste Disposal	<u>\$2.13</u>	<u>\$2.05</u>	<u>\$1,25</u>	<u>\$2.45</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc Train Delay:	\$38.83	\$26.72	\$73.66	\$15.25	NA	NA
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	.0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	<u>0.0</u>	<u>0.0</u>	0.0	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$39	\$27	\$74	\$15	NA NA	NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA ·	NA
Adjusted Total Car-days	23,251	5,366	17,374	1,533	NA	NA
Days per Trip (min. of 1)	2	<u>2</u>	2	<u>2</u>	<u>2</u>	2
Annual Oprtng Trip Related per Car	\$4,961	\$3,414	\$9,410	\$1,948	NA	NA
Annual Non-Trip Related per Car	\$2,376	\$1,794	\$4,122	\$1,212	NA	NA
Annual Oprtng Trip Related per Car Type	\$451,460	\$71,686	\$639,909	\$11,689	NA	NA
Annual Non-Trip Related per Car Type	<u>\$216,216</u>	<u>\$37,674</u>	<u>\$280,296</u>	<u>\$7.272</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,337	\$5,208	\$13,532	\$3,160	NA ,	NA
Total CAPITAL COST per Car	\$39,168	\$33,592	\$55,896	\$28,016	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours:

2,033 43.00

1

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA NA
Quantity of cars	4	1	3	1	NA	·NA.
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)				•		
Black Water:						
Human Waste/day (gals)	33.68	32.33	19,76	38.61	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	, 1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	. 0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	33.7	32.3	19.8	38.6	NA	NA
Adj. Capacity Req'd w/ Buffer	42.1	40.4	24.7	48.3	NA	", NA
Tank Capacity per Car (gals)	81	54	162	27	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	46 64%	32 45%	157 219%	13 19%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.9•	1.3	6.6	0.6	NA	NA
As a percentage of 3 days	64.14%	44.54%	218.67%	18.65%	NA	NA
Consecutive Trips before pumpout	1.0	0.0	3.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$19,500</u>	<u>\$13,000</u>	<u>\$39,000</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$19,500	\$13,000	\$39,000	\$6,500	'NA	NA
Equipment Installation				•		
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	· <u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Total Capital Cost	\$21,228	\$14,152	\$42,456	\$7,076	NA	NA

Sunset Limited

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Monogram

Manufacturer: Equipment:

Self-Cont'd Recirc

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

OPERATING COSTS Non-Trip Related Costs:	Coach Super		Sleeper Super	Lounge-HEP-HLV	<u>NA</u> -	NA
Non-Trip Related Costs:		Coach-HEP-HLV	<u>Olechel Odbel</u>	<u>Louisge-i ici -i ici</u>	144	110
l =	£4 700	04.450	00.450	<b>AC70</b>	MA	A.I.A.
Labor cost/major servicing	\$1,728	\$1,152	\$3,456	\$576	NA 2	NA
Frequency per Year	<u>3</u>	<u>3</u>	~ <u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$5,184	\$3,456	\$10,368	\$1,728	NA NA	NA
Annual spare parts cost per yr	\$585	\$39 <u>0</u>	\$1,170	\$195	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$5,769	\$3,846	\$11,538	\$1,923	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	. \$0	\$0	\$0	\$0
Pump out and Disposal					·	
- Pump out Cost	\$0.34	\$8.40	\$0.20	\$4.32	NA	NA
- Pump out minutes	0.56	00.0	0.33	0.19	NA	NA
- Connect/Disc. minutes	0.0	14.0	0.0	7.0	NA	NA
- Waste Disposal	<u>\$1.33</u>	<u>\$1.27</u>	<u>\$0.78</u>	<u>\$1.52</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$37.66	\$33.67	\$72.98	\$17.84	NA	NA
Train Delay:						
- Pump out volume req'd	0	54	0	27	NA	NA
- # of stops req'd	0	1	0	· 1	NA	NA
- Pump out minutes	0.0	0.9	0.0	0.5	NA	NA
- Connect/Disc. minutes	. <u>0.0</u>	<u>14.0</u>	<u>0.0</u>	<u>7.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	15	- 0	7	NA	NA
Average Cost Per Delay	\$0	\$9	\$0	- \$4	ŅA	NA
Subtotal- Oprtng Trip Related	\$38	\$43	\$73	\$22	NA NA	NA_
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	23,251.	5,366	17,374	1,533	NA	NA
Days per Trip (min. of 1)	2	2	. 2	2	2	2
Annual Oprtng Trip Related per Car	\$4,812	\$5,444	\$9,323	\$2,850	NA	NA
Annual Non-Trip Related per Car	\$5,769	\$3,846	\$11,538	\$1,923	NA	NA
Annual Oprtng Trip Related per Car Type	\$437,855	\$114,323	\$633,945	\$17,099	NA.	NA
Annual Non-Trip Related per Car Type	<u>\$524,979</u>	\$80,766	<u>\$784,584</u>	<u>\$11,538</u>	<u>NA</u>	<u>NA</u>
	\$10,581	\$9,290	\$20,861	\$4,773	NA	NA
Total OPRTNG COST per Car	4.0,00.			\$7,076		

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours: Expected Trips per Day: 43.00

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Expected

* All data on per car basis (unless noted	otherwise)					
•	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated	75	72	44	86	NA	NA
Toilets per car	6	4	12	2	NA	NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	99.3	95.4	58.3	113.9	NA	NA
Capacity Req'd/day (gals)	133.0	127.7	78.0	152.5	NA	NA
Adj. Capacity Req'd w/ Buffer	166.3	159.6	97.5	190.6	NA	, NA
Tank Capacity per Car (gals)	300	300	300	300	300	. 300
Continuous Service Hours Supported As a percentage of 72 hours	43 60%	45 63%	74 103%		NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.8	1.9	3.1	. 1.6	NA	NA ·
As a percentage of 3 days	60.15%	62.65%	102.53%	6 52.45%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	1.0	0.0	NA	NA
CAPITAL COSTS	•		•			
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$30,000	<u>\$20,000</u>	<u>\$60,000</u>	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$40,000	\$30,000	\$70,000	\$20,000	NA	NA
Equipment Installation				•		
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	. <u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,304	\$1,728	\$4,032	\$1,152	NA	NA
Total Capital Cost	\$42,304	\$31,728	\$74,032	\$21,152	NA NA	NANA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Manufacturer: Equipment:

Microphor Gravity

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

All data on per dai yasis (dilless holed on	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	` NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:					<u></u>	<del></del>
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	ŇA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,296	\$864	\$2,592	\$432	NA	NA
Annual spare parts cost per yr	\$1,200	<u>\$900</u>	\$2,100	<u>\$600</u>	<u>NA</u>	<u>NA</u>
Total- Oprting Non-Trip Related	\$2,496	\$1,764	\$4,692	\$1,032	NA	NA
Trip Related Costs:						•
Toilet maintenance enroute End of Day/Trip Servicing						•
- Cleaning	* \$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal •	, -		,	·		
- Pump out Cost	\$1.33	\$1.28	\$0.78	\$0.00	NA	NA
- Pump out minutes	2.22	2.13	1.30	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$4.05	\$3.89	\$2.38	\$4.65	NA	NA
Subtotal- End of Day/Trip Srvc	\$41.38	\$29.17	\$75.16	\$16.65	NA NA	NA
Train Delay:	******	<b>V</b>	*****	,		
- Pump out volume reg'd	0	0	0	300	NA	NA
- # of stops req'd	0	0	0	1	NA	NA
- Pump out minutes	0.0	0.0	0.0	5.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Total Time Delay(mins/car)	0	0	0	5	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$3	NA	. NA
Subtotal- Opring Trip Related	\$41	\$29	\$75	\$20	NA NA	NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	23,251	5,366	17,374	1,533	NA	NA
Days per Trip (min. of 1)	2	2	. 2	2	2	2
Annual Oprtng Trip Related per Car	\$5,286	\$3,726	\$9,601	\$2,510	NA	NA
Annual Non-Trip Related per Car	\$2,496	\$1,764	\$4,692	\$1,032	NA	NA
Annual Oprtng Trip Related per Car Type	\$481,066	\$78,245	\$652,888	\$15,058	NA	, NA
Annual Non-Trip Related per Car Type	<u>\$227,136</u>	<u>\$37.044</u>	<u>\$319:056</u>	<u>\$6,192</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,782	\$5,490	\$14,293	\$3,542	NA	· NA
Total CAPITAL COST per Car	\$42,304	\$31,728	\$74,032	\$21,152	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$708,202 \$3,849,664	\$115,289 \$666,288	\$971,944 \$5,034,176	\$21,250 \$126,912	NA NA	NA NA

Sunset Limited

Route Number: #1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours:

43.00

Expected Trips per Day: Manufacturer:

Equipment:

Evac Ultimate

Scenario:

Expected

Coach Super   Coach Super   Coach HEP-HLV   Sleeper Super   Counge HEP-HLV   NA   NA   NA	* All data on per car basis (unless noted	otherwise)			•		
Capacity (#) people) - seated         75         72         44         86         NA         NA         NA           Toilets per car         6         4         12         2         NA         NA           Average persons/toilet on train         12.5         18.0         3.7         43.0         NA         NA           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         33.68         32.33         19.76         38.61         NA         N           Flushes/Preson-day         7.00         7.00         7.00         7.00         7.00         7.00         7.00         7.0         7.7	•						NA <u>NÀ</u>
Toilet oper car 6 4 12 2 NA NA NA Average persons/toilet on train 12.5 18.0 3.7 43.0 NA NA NA NA Average persons/toilet on train 12.5 18.0 3.7 43.0 NA	Quantity of cars	4	1	3	1	NA	NA
Black Water:   Human Waste'day (gals)   33.68   32.33   19.76   38.61   NA   NA   NA   Flushes/Person-day   7.00							NA NA
Black Water:   Human Waste/day (gals)   33.68   32.33   19.76   38.61   NA   NA   Flushes/Person-day   7.00   7.	Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Human Waste/day (gals) 33.68 32.33 19.76 38.61 NA NA #Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.0	Car Waste Data (per car)						
# Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.0	Black Water:						
Flush efficiency adjustment	Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.	# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Fluish Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 0.047 1.047 0.0	Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Flush Fluids/day (gals) 27.1 26.1 15.9 31.1 NA NA NA Capacity Req'd/day (gals) 60.8 58.4 35.7 69.7 NA NA NA Adj. Capacity Req'd w/ Buffer 76.0 73.0 44.6 87.2 NA NA NA Tank Capacity per Car (gals) 200 200 200 200 200 200 200 200 200 20	Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Capacity Req'd/day (gals) 60.8 58.4 35.7 69.7 NA NA NA Adj. Capacity Req'd w Buffer 76.0 73.0 44.6 87.2 NA NA Tank Capacity per Car (gals) 200 200 200 200 200 200 200 200 200 20	Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Adj. Capacity Req'd w/ Buffer         76.0         73.0         44.6         87.2         NA         N           Tank Capacity per Car (gals)         200         200         200         200         200         200           Continuous Service Hours Supported As a percentage of 72 hours         63         66         108         55         NA         NA           As a percentage of 72 hours         88%         91%         149%         76%         NA         NA           Probable Service Hours per Day         24	Flush Fluids/day (gals)	27.1	26.1	15.9	31.1	NA	NA
Tank Capacity per Car (gals) 200 200 200 200 200 200 200 200  Continuous Service Hours Supported 63 66 108 55 NA NA NA NA As a percentage of 72 hours 88% 91% 149% 76% NA	Capacity Req'd/day (gals)	60.8	58.4	35.7	69.7	· NA	NA
Continuous Service Hours Supported As a percentage of 72 hours 88% 91% 149% 76% NA NA NA NA NA As a percentage of 72 hours 88% 91% 149% 76% NA	Adj. Capacity Req'd w/ Buffer	76.0	73.0	44.6	87.2	NA	~ NA
As a percentage of 72 hours	Tank Capacity per Car (gals)	200	200	200	200	200	200
Service Days Supported         2.6         2.7         4.5         2.3         NA         NA           As a percentage of 3 days         87.69%         91.35%         149.48%         76.48%         NA         NA           Consecutive Trips before pumpout         1.0         1.0         2.0         1.0         NA         N           CAPITAL COSTS         Collection System per Car         \$12,000							NA NA
As a percentage of 3 days 87.69% 91.35% 149.48% 76.48% NA NA NA  Consecutive Trips before pumpout 1.0 1.0 2.0 1.0 NA NA  CAPITAL COSTS  Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000  Toilet Cost per Car \$17,400 \$11,600 \$34,800 \$5,800 NA NA  Total Equip Cost \$29,400 \$23,600 \$46,800 \$17,800 NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$1,728 \$1,152 \$3,456 \$576 NA NA	Probable Service Hours per Day	24	24	24	24	24	24
Consecutive Trips before pumpout 1.0 1.0 2.0 1.0 NA N  CAPITAL COSTS  Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000  Toilet Cost per Car \$17,400 \$11,600 \$34,800 \$5,800 NA N  - Total Equip Cost \$29,400 \$23,600 \$46,800 \$17,800 NA N  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$1,728 \$1,152 \$3,456 \$576 NA NA	Service Days Supported	. 2.6	2.7	4.5	2.3	NA	NA
CAPITAL COSTS  Collection System per Car \$12,000 \$12,0	As a percentage of 3 days	87.69%	91.35%	149.48%	76.48%	NA	NA
Collection System per Car         \$12,000         \$10,000         \$10,0	Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
Toilet Cost per Car         \$17,400         \$11,600         \$34,800         \$5,800         NA         N           - Total Equip Cost         \$29,400         \$23,600         \$46,800         \$17,800         NA         N           Equipment Installation         Collection System per Car         \$1,440	CAPITAL COSTS		•				
- Total Equip Cost       \$29,400       \$23,600       \$46,800       \$17,800       NA       N         Equipment Installation       Collection System per Car       \$1,440	Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Equipment Installation         Collection System per Car       \$1,440		<u>\$17,400</u>	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>
Equipment Installation         Collection System per Car       \$1,440	- Total Equip Cost	\$29,400	\$23,600	\$46,800	\$17,800	NA	NA
Toilet Cost per Car \$1,728 \$1,152 \$3,456 \$576 NA N	•						
· · · · · · · · · · · · · · · · · · ·	Collection System per Car	\$1,440	\$1,440	. \$1,440	\$1,440	\$1,440	\$1,440
	Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- rotal installation Cost \$3,168 \$2,592 \$4,896 \$2,016 NA N	- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Total Capital Cost \$32,568 \$26,192 \$51,696 \$19,816 NA N	Total Capital Cost	\$32,568	\$26,192	\$51,696	\$19,816	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours: Expected Trips per Day: 43.00 1

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted of				,		
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:	<u> </u>	<u> </u>	окоро. Фараг	Eddings Ties Tiev	<del></del>	1111
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	3	3	3	<u>3</u>	<u>3</u>	3
Servicing Cost/Year	\$1,296	\$864	\$2,592	_	NA NA	NA NA
Annual spare parts cost per yr	\$882	\$708	\$1,404	\$534	NA NA	NA NA
Total- Opring Non-Trip Related	\$2,178	\$1,572	\$3,996	\$966	NA NA	NA NA
, - ,			<u> </u>	<del></del>		
Trip Related Costs:					•	
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal					•	
- Pump out Cost	\$0.61	\$0.58	\$0.36	\$0.70	NA	NA
- Pump out minutes	1.01	0.97	0.59	1.16	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$1.85</u>	<u>\$1.78</u>	<u>\$1.09</u>	<u>\$2.12</u>	<u>NA</u>	. <u>NA</u>
Subtotal- End of Day/Trip Srvc	\$38.46	\$26,36	\$73.44	\$14.82	NA	· NA
Train Delay:						
- Pump out volume reg'd	0	0 ·	0	. 0	NA	NA
- # of stops req'd	0	0	0	0	NA	· NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>NA</u>	NA.
- Total Time Delay(mins/car)			0		NA	NA
Average Cost Per Delay	. \$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$38	\$26	\$73	\$15	NA	NA
					·	
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	23,251	5,366	17,374	1,533	NA	NA
Days per Trip (min. of 1)	2	2	<u>2</u>	<u>2</u>	<u>2</u>	· <u>2</u>
Annual Oprtng Trip Related per Car	\$4,913	\$3,368	\$9,382	\$1,893	NA	NA
Annual Non-Trip Related per Car	\$2,178	\$1,572	\$3,996		NA	NA
		, ,				
Annual Opring Trip Related per Car Type	\$447,114	\$70,723	\$638,004	•	NA	NA
Annual Non-Trip Related per Car Type	<u>\$198,198</u>	\$33.012	<u>\$271.728</u>	<u>\$5,796</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,091	\$4,940	\$13,378	\$2,859	NA	NA
Total CAPITAL COST per Car	\$32,568	\$26,192	\$51,696	\$19,816	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$645,312 \$2,963,688	\$103,735 \$550,032	\$909,732 \$3,515,328	\$17,157 \$118,896	NA NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours: Expected Trips per Day: 43.00 1

Manufacturer:

iltoob

Equipment:

Railtech WTS 8300

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.	10 1.10 .7 7.7
Quantity of cars         4         1         3         1           Capacity (# people) - seated         75         72         44         86           Toilets per car         6         4         12         2           Average persons/toilet on train         12.5         18.0         3.7         43.0           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         33.68         32.33         19.76         38.61           # Flushes/Person-day         7.00         7.00         7.00         7.00         7.00         7.0         7.0         7.0         7.0         7.0         7.0         7.7	NA NA NA NA OO 7.00 10 1.10 7.7
Capacity (# people) - seated Toilets per car         75         72         44         86           Toilets per car         6         4         12         2           Average persons/toilet on train         12.5         18.0         3.7         43.0           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         33.68         32.33         19.76         38.61           # Flushes/Person-day         7.00         7.00         7.00         7.00         7.00         7.00         7.0         7.00         7.0         7.0         7.0         7.7         <	NA
Toilets per car 6 4 12 2 Average persons/toilet on train 12.5 18.0 3.7 43.0  Car Waste Data (per car)  Black Water: Human Waste/day (gals) 33.68 32.33 19.76 38.61 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7. Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.1 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.	NA N
Black Water:   Human Waste/day (gals)   33.68   32.33   19.76   38.61     Flushes/Person-day   7.00   7.0	NA NA 20 7.00 10 1.10 .7 7.7
Black Water: Human Waste/day (gals) 33.68 32.33 19.76 38.61 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1. Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 152.0 145.9 89.2 174.3  Capacity Req'd/day (gals) 185.6 178.2 108.9 212.9 Adj. Capacity Req'd w/ Buffer 232.1 222.8 136.1 266.1 Tank Capacity per Car (gals) 150 100 300 100  Continuous Service Hours Supported 16 11 53 9 As a percentage of 72 hours 22% 15% 73% 13%  Probable Service Hours per Day 24 24 24 24 24 24 24 24 Service Days Supported 0.6 0.4 2.2 0.4	7.00 10 1.10 .7 7.7
Black Water: Human Waste/day (gals) 33.68 32.33 19.76 38.61 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1. Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 152.0 145.9 89.2 174.3  Capacity Req'd/day (gals) 185.6 178.2 108.9 212.9 Adj. Capacity Req'd w/ Buffer 232.1 222.8 136.1 266.1 Tank Capacity per Car (gals) 150 100 300 100  Continuous Service Hours Supported 16 11 53 9 As a percentage of 72 hours 22% 15% 73% 13%  Probable Service Hours per Day 24 24 24 24 24 24 24 24 Service Days Supported 0.6 0.4 2.2 0.4	7.00 10 1.10 .7 7.7
Human Waste/day (gals) 33.68 32.33 19.76 38.61 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1. Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 152.0 145.9 89.2 174.3  Capacity Req'd/day (gals) 185.6 178.2 108.9 212.9 Adj. Capacity Req'd w/ Buffer 232.1 222.8 136.1 266.1 Tank Capacity per Car (gals) 150 100 300 100  Continuous Service Hours Supported 16 11 53 9 As a percentage of 72 hours 22% 15% 73% 13%  Probable Service Hours per Day 24 24 24 24 24 24 24  Service Days Supported 0.6 0.4 2.2 0.4	7.00 10 1.10 .7 7.7
# Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.01 7.00 7.00	7.00 10 1.10 .7 7.7
Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.1 1.10 1.1 1.1 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.	10 1.10 .7 7.7
Adj. # Flushes/Person-day       7.7 <t< td=""><td>.7 7.7</td></t<>	.7 7.7
Flush Fluids/flush (gals)       0.263	
Flush Fluids/day (gals)       152.0       145.9       89.2       174.3         Capacity Req'd/day (gals)       185.6       178.2       108.9       212.9         Adj. Capacity Req'd w/ Buffer       232.1       222.8       136.1       266.1         Tank Capacity per Car (gals)       150       100       300       100         Continuous Service Hours Supported As a percentage of 72 hours       16       11       53       9         As a percentage of 72 hours       22%       15%       73%       13%         Probable Service Hours per Day       24       24       24       24       24         Service Days Supported       0.6       0.4       2.2       0.4	33 . 0.563
Capacity Req'd/day (gals) 185.6 178.2 108.9 212.9 Adj. Capacity Req'd w/ Buffer 232.1 222.8 136.1 266.1 Tank Capacity per Car (gals) 150 100 300 100  Continuous Service Hours Supported 16 11 53 9 As a percentage of 72 hours 22% 15% 73% 13%  Probable Service Hours per Day 24 24 24 24 24  Service Days Supported 0.6 0.4 2.2 0.4	,0 0.200
Adj. Capacity Req'd w/ Buffer       232.1       222.8       136.1       266.1         Tank Capacity per Car (gals)       150       100       300       100         Continuous Service Hours Supported As a percentage of 72 hours       16       11       53       9         As a percentage of 72 hours       22%       15%       73%       13%         Probable Service Hours per Day       24       24       24       24       24         Service Days Supported       0.6       0.4       2.2       0.4	NA NA
Tank Capacity per Car (gals)       150       100       300       100         Continuous Service Hours Supported As a percentage of 72 hours       16 22% 15% 73% 13%       11 53 73% 13%         Probable Service Hours per Day       24 24 24 24 24       24 24 24         Service Days Supported       0.6 0.4 2.2 0.4	NA · NA
Continuous Service Hours Supported As a percentage of 72 hours       16 22% 15% 73% 13%         Probable Service Hours per Day       24 24 24 24         Service Days Supported       0.6 0.4 2.2 0.4	NA ·· NA
As a percentage of 72 hours 22% 15% 73% 13%  Probable Service Hours per Day 24 24 24 24 24  Service Days Supported 0.6 0.4 2.2 0.4	NA NA
Service Days Supported 0.6 0.4 2.2 0.4	NA NA NA NA
• • • • • • • • • • • • • • • • • • • •	24 24
	NA NA
As a percentage of 3 days 21.55% 14.96% 73.45% 12.53%	NA NA
Consecutive Trips before pumpout 0.0 0.0 1.0 0.0	NA NA
CAPITAL COSTS	
Collection System per Car         \$12,000         \$8,000         \$24,000         \$8,000	NA NA
Toilet Cost per Car \$18,000 \$12,000 \$36,000 \$6,000	NA NA
- Total Equip Cost \$30,000 \$20,000 \$60,000 \$14,000	NA NA
Equipment Installation	
Collection System per Car         \$864         \$576         \$1,728         \$576	
Toilet Cost per Car \$1,728 \$1,152 \$3,456 \$576	NA NA
	NA NA NA NA
Total Capital Cost \$32,592 \$21,728 \$65,184 \$15,152	

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Railtech

Manufacturer: Equipment:

WTS 8300 Expected

Scenario: Expecte
\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	horwico)					
All data on per car basis (unless noted of	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS			элээр,эт тэрэг,	<u> </u>	<del></del>	
Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	· \$144	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,296	\$864	\$2,592	\$432	NA	NA
Annual spare parts cost per yr	<u>\$900</u>	<u>\$600</u>	<u>\$1,800</u>	<u>\$420</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$2,196	\$1,464	\$4,392	\$852	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	0\$	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$6.66	\$4.98	\$1.09	\$5.33	NA	NA
- Pump out minutes	0.59	1.30	1.82	1.88	NA	NA
- Connect/Disc. minutes	10.5	7.0	0.0	7.0	NA	NA
- Waste Disposal	<b>\$5.65</b>	<u>\$5.43</u>	\$3.32	<u>\$6.48</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$48.31	\$34.41	\$76.41	\$23.81	NA	NA
Train Delay:						
- Pump out volume req'd	150	100	0	100	NA	NA
- # of stops req'd	1	1	0	1	NA	NA
- Pump out minutes	2.5	1.7	0.0	1.7	NA	NA
- Connect/Disc. minutes	<u>10.5</u>	· <u>7.0</u>	<u>0.0</u>	<u>7.0</u> ·	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	13	9	0	9	NA	NA
Average Cost Per Delay	\$8	\$5	\$0	\$5	NA	NA
Subtotal- Oprtng Trip Related	\$56	\$40	\$76	\$29	NANA	NA NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	. NA	NA
Adjusted Total Car-days	23,251	5,366	17,374	1,533	NA	NA
Days per Trip (min. of 1)	2	2	<u>2</u>	<u>2</u>	2	2
Annual Oprtng Trip Related per Car	\$7,168	\$5,060	\$9,761	\$3,706	NA	NA
Annual Non-Trip Related per Car	\$2,196	\$1,464	\$4,392	\$852	NA	NA
Annual Opring Trip Related per Car Type	\$652,305	\$106,265	\$663,743	\$22,238	NA	NA NA
Annual Non-Trip Related per Car Type	<u>\$199,836</u>	\$30,744	<u>\$298,656</u>	<u>\$5,112</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$9,364	\$6,524	\$14,153	\$4,558	NA	NA
Total CAPITAL COST per Car	\$32,592	\$21,728	\$65,184	\$15,152	NA	· NA
Total OPRTNG COST for all cars	\$852,141	\$137,009	\$962,399		NA.	NA NA
Total CAPITAL COST for all cars	\$2,965,872	\$456,288	\$4,432,512	\$90,912	NA NA	NA NA

C2.2 California Zephyr, Chicago-Oakland

Amtrak Route: Origin/Destination:	California Zephyr Chicago-Oakland		Route Number:	#5-6		
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1			•		
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Expected					·
* All data on per car basis (unless noted	otherwise)					
	39900 <u>Trans Dorm Coach</u>	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated	40	44	78	75	NA:	NA
Toilets per car	<b>^4</b>	12	5	6	NA	NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA ·	NA
Car Waste Data (per car)						
Black Water:	•					
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	19.4	21.3	37.8	36.4	. NA	NA
Capacity Req'd/day (gals)	37.4	41.1	72.9	70.1	NA ·	NA
Adj. Capacity Req'd w/ Buffer	46.7	51.4		87.6	NA	NA
Tank Capacity per Car (gals)	235	235		235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	121 168%	110 1529		64 89%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	5.0	4.6	2.6	2.7	NA	NA
As a percentage of 3 days	167.72%	152.479		_	NA .	NA
Consecutive Trips before pumpout	2.0	2.0	1.0	1.0	NA	NA.
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000		\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$10,000</u>	\$30,000		<u>\$15,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$31,000	\$51,000	\$33,500	\$36,000	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440		\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>		<u>\$1.728</u>	<u>NA</u>	NA
- Total Installation Cost	\$2,592	\$4,896		\$3,168	NA	NA
Total Capital Cost	\$33,592	\$55,896	\$36,380	\$39,168	NA	NA_

Amtrak Route: California Zephyr Origin/Destination:

Chicago-Oakland

2,422 51.17

Length in Hours: Expected Trips per Day:

Manufacturer:

Length in Miles:

Monogram Modified Vacuum

Equipment:

Scenario:	Expected					
* All data on per car basis (unless noted of	otherwise)				N.	
	39900 Trans Down Coast	32000	31000	34000 Coach Super	NA NA	NA NA
OPERATING COSTS	Trans Dorm Coach	Sieeper Super	Bag Coach Super	Coacii Super	INA	INA
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>3</u>	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$86 <del>4</del>	\$2,592	\$1,080	\$1,29 <del>6</del>	NA	NA
Annual spare parts cost per.yr	\$930	\$1,53 <u>0</u>	\$1,005	\$1,080	NA	NA
Total- Opring Non-Trip Related	\$1,794	\$4,122	\$2,085	\$2,376	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$0</b> -	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.37	\$0.41	\$0.73	\$0.70	NA	· NA
- Pump out minutes	0.62	0.69	1.21	1.17	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<b>\$1.35</b>	\$1,49	\$2.64	<u>\$2.54</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$25.73	\$73.90	\$33.37	\$39.24	NA	NA.
Train Delay:						
- Pump out volume req'd	0	0	0	0	NÁ	NA
- # of stops reg'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NÁ	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$26	\$74	\$33	\$39	NA	NA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Advanta d T Asl Oss doss	0.400	47.074	10.001	00.054	NIA	<b>114</b>
Adjusted Total Car-days	9,198	17,374	12,264	23,251	NA 2	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Oprtng Trip Related per Car	\$2,191	\$6,294	\$2,842	\$3,342	NA	NA
Annual Non-Trip Related per Car	\$1,794	\$4,122	\$2,085	\$2,376	NA	NA
Annual Oprtng Trip Related per Car Type	\$78,882	\$427,984	\$136,414	\$304,115	NA	NA
Annual Non-Trip Related per Car Type	<u>\$64,584</u>	<u>\$280,296</u>	<u>\$100,080</u>	<u>\$216,216</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,985	\$10,416	\$4,927	\$5,718	NAo	NA
Total CAPITAL COST per Car	<b>,\$33,592</b>	\$55,896	\$36,380	\$39,168	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$143,466 \$1,209,312	\$708,280 \$3,800,928	\$236,494 \$1,746,240	\$520,331 \$3,564,288	NA NA	NA NA

Route Number:

Amtrak Route: Origin/Destination: Length in Miles: Length In Hours:	California Zephyr Chicago-Oakland 2,422 51.17		Route Number:	#5-6		
_	1					
Expected Trips per Day: Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
• •						
Scenario:	Expected					
* All data on per car basis (unless noted						
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
Quantity of core	1	3	3	5	NA	NA NA
Quantity of cars Capacity (# people) - seated	40	44	78	75	NA NA	NA NA
Toilets per car	40	12	5	6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	. NA	NA NA
•						•
Car Waste Data (per car)			*			
Black Water:						
Human Waste/day (gais)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	- 7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	· NA	NA
Capacity Req'd/day (gals)	18.0	19.8	35.0	33.7	NA	NA
Adj. Capacity Req'd w/ Buffer	22.5	24.7	. 43.8	42.1	NA	NA
Tank Capacity per Car (gals)	54	162	67.5	81	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	58 80%	157 219%	37 51%	46 64%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Soniae Deva Supre-de-d	2.4	6.6	1.5	4.0	A1.4	814
Service Days Supported	2.4 80.18%	6.6 218,67%		1.9 64.14%	NA NA	NA -
As a percentage of 3 days	. 60.10%	218.677	o 51.40%	04.14%	NA	NA
Consecutive Trips before pumpout	1.0	3.0	0.0	0.0	NA	NA
CAPITAL COSTS			~			
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$13,000</u>	\$39,000	\$16,250	<u>\$19,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$13,000	\$39,000	\$16,250	\$19,500	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1,440</u>	<u>\$1,728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA
Total Capital Cost	\$14,152	\$42,456	\$17,690	\$21,228	NA	NA

a

Amtrak Route: California Zephyr Route Number: #5-6

Origin/Destination: Chicago-Oakland
Length in Miles: 2,422
Length in Hours: 51.17
Expected Trips per Day: 1

Manufacturer: Monogram
Equipment: Self-Cont'd Recirc

Scenario: Expected

	39900 Trans Dorm Coach	32000 Steeper Super	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	N/ N/
OPERATING COSTS	Trails Dollii Coacii	Oleebel Onbei	Day Coach Super	Coacii Oupei	<u>NA</u>	131
Non-Trip Related Costs:			*	4. ===		
Labor cost/major servicing	\$1,152	\$3,456	\$1,440	\$1,728	NA	N/
Frequency per Year	<u>3</u>	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$3,456	\$10,368	\$4,320	\$5,184	, NA	N/
Annual spare parts cost per yr	<u>\$390</u>	<u>\$1,170</u>	<u>\$488</u>	\$58 <u>5</u>	<u>NA</u>	<u>N/</u>
Total- Oprtng Non-Trip Related	\$3,846	\$11,538	\$4,808	\$5,769	NA NA	N/
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	N/
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.18	\$0.20	\$10.50	\$12.60	NA	N/
- Pump out minutes	0.30	0.33	0.00	0.00	NA	N/
- Connect/Disc. minutes	0.0	0.0	17.5	21.0	NA	N
- Waste Disposal	\$0.84	\$0.93	<u>\$1.64</u>	<u>\$1.58</u>	<u>NA</u>	<u>N/</u>
Subtotal- End of Day/Trip Srvc	\$25.02	\$73.12	\$42.14	\$50.18	NA	N/
Train Delay:						
- Pump out volume reg'd	0	0	68	. 81	NA	N/
- # of stops reg'd	0	. 0	1	1	NA	N/
- Pump out minutes	0.0	0.0	1.1	1.4	NA	N/
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>17.5</u>	<u>21.0</u>	<u>NA</u>	<u>N/</u>
- Total Time Delay(mins/car)	0	0	19	22	NA	· NA
Average Cost Per Delay	\$0	\$0	\$11	\$13	NA	N/
Subtotal- Opring Trip Related	\$25	\$73	\$53	\$64	NA	N/
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	N/
Adjusted Total Car-days	9,198	17,374	12,264	23,251	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	· <u>3</u>
Annual Oprtng Trip Related per Car	\$2,131	\$6,228	\$4,541	\$5,416	NA	NA
Annual Non-Trip Related per Car	\$3,846	\$11,538	\$4,808	\$5,769	NA	NA
Annual Opring Trip Related per Car Type	\$76,718	\$423,487	\$217,963	\$492,830	NA	N
Annual Non-Trip Related per Car Type	\$138,45 <u>6</u>	\$784,584	\$230,760	\$524,979	<u>NA</u>	N/
		<u> </u>	· .	<del></del>	_	
Total OPRTNG COST per Car	\$5,977	\$17,766	\$9,348	\$11,185	NA	N/
Total CAPITAL COST per Car	\$14,152	\$42,456	\$17,690	\$21,228	NA	N/

Amtrak Route:	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland		riodio ridilipor.	#J-0		
Length in Miles:	2,422			*		
Length in Hours:	51.17					
Expected Trips per Day:	1		,			
Manufacturer:	Microphor					
Equipment:	Gravity					•
Scenario:	Expected					
* All data on per car basis (unless noted	otherwise)					•
	39900	32000	31000	. 34000	NA	NA
•	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
Quantity of cars	1	.3	3	5	NA	NA
Capacity (# people) - seated	40 4	44 12	78 5	75 6	NA NA	NA NA
Toilets per car  Average persons/toilet on train	10.0	3.7		12.5	NA NA	NA NA
Average persons/toller on trail	10.0	3.7	13.0	12.5	IVA	INA
				, .		•
Car Waste Data (per car)						
Black Water:		*				
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	53.0	58.3	103.3	99.3	NA	NA
Capacity Req'd/day (gals)	70.9	78.0	138.3	133.0	NA	NA
Adj. Capacity Req'd w/ Buffer	88.7	97.5	172.9	166.3	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported	81	74	42	43	NA	NA ·
As a percentage of 72 hours	113%	103%		60%	NA	NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	3.4	3.1	1.7	1.8	, NA	NA
As a percentage of 3 days	112.78%	102.53%	57.83%	60.15%	NA	NA
Consecutive Trips before pumpout	1,0	1.0	0.0	0.0	NA	· NA
CAPITAL COSTS				•		
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$20,000	\$60,000	\$25,000	\$30,000	NA.	NA
- Total Equip Cost	\$30,000	\$70,000	\$35,000	\$40,000	. NA	NA
Coving and Installation	- •	• - • - = -				

\$576

<u>\$3.456</u>

\$4,032

\$74,032

\$576

\$1,152

\$1,728

\$31,728

- Total Equip Cost Equipment Installation

Toilet Cost per Car

Total Capital Cost

- Total Installation Cost

Collection System per Car

\$576

\$1,440

\$2,016

\$37,016

\$576

\$1,728

\$2,304

\$42,304

\$576

<u>NA</u> NA

NA

\$576

<u>NA</u>

NA

NA

. California Zephyr

Chicago-Oakland

2,422 51.17

Length in Hours: Expected Trips per Day:

Manufacturer:

Length in Miles:

Microphor

Equipment:

Gravity

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
OPERATING COSTS		эксерен очерен			<del></del>	
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$864	\$2,592	\$1,080	\$1,296	NA	NA
Annual spare parts cost per yr	<u>\$900</u>	\$2,100	<u>\$1,050</u>	<u>\$1,200</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,764	\$4,692	\$2,130	\$2,496	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						*
- Pump out Cost	\$0.71	\$0.78	\$0.00	\$0.00	NA	NA
- Pump out minutes	1.18	1.30	0.00	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$2.57</u>	<u>\$2.83</u>	<u>\$5.01</u>	<u>\$4.82</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc Train Delay:	\$27.28	\$75.61	\$35.01	\$40.82	NA	NA
- Pump out volume req'd	0	0	300	300	NA	NA
- # of stops req'd	0	0	1	1	NA	NA
- Pump out minutes	0.0	0.0	5.0	5.0	NA.	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	_			5	NA	NA
Average Cost Per Delay	\$0	\$0	\$3	\$3	NA	NA
Subtotal- Oprtng Trip Related	\$27	\$76	\$38	\$44	NA	NA_
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA <sup>·</sup>	ŅĀ
Adjusted Total Car-days	9,198	17,374	12,264	23,251	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Opring Trip Related per Car	\$2,323	\$6,439	\$3,237	\$3,732	NA	NA
Annual Non-Trip Related per Car	\$1,764	\$4,692	\$2,130	\$2,496	NA	NA
Annual Oprtng Trip Related per Car Type	\$83,642	. \$437,874	\$155,400	\$339,619	NA	NA
Annual Non-Trip Related per Car Type	<u>\$63,504</u>	<u>\$319,056</u>	\$102,240	\$227,136	NA	<u>N</u> A
Total OPRTNG COST per Car	\$4,087	\$11,131	\$5,367	\$6,228	. NA	NA
Total CAPITAL COST per Car	\$31,728	\$74,032	\$37,016	\$42,304	NA	NA
Total OPRTNG COST for all cars	\$147,146	\$756,930	\$257,640 \$1,776,768	\$566,755	NA	NA

Route Number:

California Zephyr

Chicago-Oakland

2,422

Length in Miles: Length in Hours:

51.17

Expected Trips per Day: Manufacturer:

Equipment:

Evac Ultimate

Scenario:

Expected

a

\* All data on per car basis (unless noted otherwise)

×	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
Quantity of cars	1	3	3	5	NA NA	'NA
Capacity (# people) - seated	40	44	78	75	NA.	NA
Toilets per car	4	12	5	6	NA	NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	<b>NA</b> .	NA
Car Waste Data (per car)						
Black Water:					•	
Human Waste/day (gals)	17.96	19.76	35.02	. 33.68	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	14.5	15.9	28.2	27.1	NA	NA
Capacity Req'd/day (gals)	32.4	35.7	63.3	60.8	NA	NA
Adj. Capacity Req'd w/ Buffer	40.5	44.6	79.1 <sup>-</sup>	76.0	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	118 164%	108 149%	61 6 84%	63 88%	NA NA	NA NA
Probable Service Hours per Day	. 24	24	24	24	24	24
Service Days Supported	4.9	4.5	2.5	2.6	NA	NA
As a percentage of 3 days	164.43%	149.48%	6 84.32%	87.69%	NA	NA
Consecutive Trips before pumpout	2.0	2.0	1.0	1.0	NA	NA
CAPITAL COSTS			¥			
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$14,500</u>	<u>\$17,400</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$23,600	\$46,800	\$26,500	\$29,400	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1,440</u>	<u>\$1,728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$4,896	\$2,880	\$3,168	NA	NA
Total Capital Cost	\$26,192	\$51,696	\$29,380	\$32,568	NA	NA

Route Number:

Amtrak Route: California Zephyr Route Number:

1

Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17

Expected Trips per Day:

Manufacturer: Evac
Equipment: Ultimate

<ul> <li>All data on per car basis (unless noted other</li> <li>Transaction</li> </ul>	39900 ans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	N. N.
PERATING COSTS	210 29111 9 9 2 9 1	<u> Oleoper Odpor</u>	<u> </u>	<u> </u>	<u></u>	
Non-Trip Related Costs:	\$288	\$864	\$360	\$432	NA	N
Labor cost/major servicing Frequency per Year			· ·	•	3	
Servicing Cost/Year	<u>3</u> \$864	<u>3</u> \$2,592	<u>3</u> \$1,080	<u>3</u> \$1,296	NA NA	<u>3</u> N
Annual spare parts cost per yr	\$708	\$2,592 \$1,404	\$1,080 <u>\$795</u>	\$882	NA NA	N.
Total- Oprtng Non-Trip Related	\$1,572	\$3,996	\$1,875	\$2,178	NA NA	N.
Trip Related Costs:		9				
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	N/
- Light Repair	\$0	.\$0	\$0	\$0	\$0	- \$0
Pump out and Disposal						
- Pump out Cost	\$0.32	\$0.36	\$0.63	\$0.61	NA	N <sub>i</sub>
- Pump out minutes	0.54	0.59	1.05	1.01	NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	N/
Waste Disposal	<u>\$1.18</u>	<u>\$1.29</u>	<u>\$2.29</u>	<u>\$2.20</u>	NA.	N.
Subtotal- End of Day/Trip Srvc	\$25.50	\$73.65	\$32.93	\$38.81	NA	N
Train Delay:					*	
- Pump out volume req'd	0	0	0	. 0	NA	N/
- # of stops req'd	0	0	0	0	NA .	N/
- Pump out minutes	0.0	0.0	0.0	0.0	NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	<u>0.0</u>	<u>NA</u>	<u>N</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	N
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	N/
Subtotal- Opring Trip Related	\$26	\$74	\$33	\$39	NA	N/
otal # Cars in fleet	. 36	68	48	91	NA	NA
otal Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
djusted Total Car-days	9,198	17,374	12,264	23,251	NA	N/
ays per Trip (min. of 1)	3	3	<u>3</u>	<u>3</u>	<u>3</u>	3
nnual Oprtng Trip Related per Car	\$2,172	\$6,273	\$2,804	\$3,306	NA	N/
nnual Non-Trip Related per Car	\$1,572	\$3,996	\$1,875	\$2,178	NA	NA
nnual Oprtng Trip Related per Car Type	\$78,183	\$426,532	\$134,598	\$300,804	NA	N
nnual Non-Trip Related per Car Type	<u>\$56,592</u>	<u>\$271,728</u>	<u>\$90,000</u>	<u>\$198,198</u>	. <u>NA</u>	<u>N</u> A
otal OPRTNG COST per Car	\$3,744	\$10,269	\$4,679	\$5,484	NA	N
otal CAPITAL COST per Car	\$26,192	\$51,696	- \$29,380	\$32,568	NA	N/

Amtrak Route:	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland					
Length in Miles:	2,422					9
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Railtech		-			
Equipment:	WTS 8300					
Scenario:	Expected					
<ul> <li>All data on per car basis (unless noted</li> </ul>	l otherwise)	•				
	39900	32000	31000	34000	NA	NA
•		Steeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
Quantity of cars	1	3	3	5	NA <sup>*</sup>	NA
Capacity (# people) - seated	40	44	78	75	NA	NA
Toilets per car	4 10.0	12 3.7	5	6	NA	NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)						
Black Water:	•		•			
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	81.1	. 89.2	158.1	152.0	NA	NA
Capacity Req'd/day (gals)	99.0	108.9	193.1	185.6	NA	NA
Adj. Capacity Req'd w/ Buffer	123.8	136.1	241.3	232.1	NA	NA
Tank Capacity per Car (gals)	100	300	150	150	NA T	NA
Continuous Service Hours Supported	19	53	15	16	NA	NA NA
As a percentage of 72 hours	27%	73%		22%	NA	NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	0.8	2.2	0.6	0.6	NA	NA
As a percentage of 3 days	26,93%	73.45%		21.55%	NA NA	NA NA
/is a personage of a days	20.33 /6	70.457	20.1278	21.3376	INA	INA
Consecutive Trips before pumpout	0.0	1.0	0.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$24,000	\$12,000	\$12,000	NA	NA
Toilet Cost per Car	\$12,000	\$36,000	<u>\$15,000</u>	\$18,000	NA	. <u>NA</u>
- Total Equip Cost	\$20,000	\$60,000	\$27,000	\$30,000	NA	NA NA
Equipment Installation		,	· ,	¥, <del>-</del>		
Callestian System nor Car	<b>AE70</b>	A4 700	0004	0004		

\$1,728

<u>\$3,456</u>

\$5,184 \$65,184 \$864

\$1,440

\$2,304 \$29,304 \$864

\$1,728 \$2,592 \$32,592 NA

<u>NA</u>

NA

NA

NA

<u>NA</u>

NA

NA

h j

\$576

\$1.152 \$1,728 \$21,728

Collection System per Car

Toilet Cost per Car

Total Capital Cost

- Total Installation Cost

Amtrak Route: California Zephyr Route Number: #5-6 Chicago-Oakland Origin/Destination: Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Railtech Manufacturer: **WTS 8300** Equipment: Scenario: Expected \* All data on per car basis (unless noted otherwise) 31000 34000 39900 32000 NA NA Trans Dorm Coach Sleeper Super Coach Super NA NA Bag Coach Super **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$288 \$864 \$360 \$432 NA NA Frequency per Year 3 3 3 3 3 3 \$1,080 Servicing Cost/Year \$864 \$2,592 \$1,296 NA NA Annual spare parts cost per yr \$600 \$1,800 \$810 \$900 <u>NA</u> <u>NA</u> NA Total- Oprtng Non-Trip Related \$1,464 \$4,392 \$1,890 \$2,196 NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$30 - Cleaning \$24 \$72 \$36 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$4.20 \$1.09 \$6.73 \$6.66 NA NA 0.72 - Pump out minutes 0.00 1.82 0.59 NA NA - Connect/Disc. minutes 10.5 10.5 NA NA 7.0 0.0 - Waste Disposal \$3.59 \$3.95 \$7.00 \$6.73 NA: NΑ Subtotal- End of Day/Trip Srvc \$77.04 \$49.39 NA: NA \$31.79 \$43.73 Train Delay: - Pump out volume reg'd 100 0 150 150 NA NA - # of stops req'd 0 NA NA 1 1 1 - Pump out minutes 1.7 0.0 2.5 2.5 NA NA - Connect/Disc. minutes 0.0 10.5 10.5 NΑ <u>NA</u> 7.0 - Total Time Delay(mins/car) 9 0 13 13 NA NA Average Cost Per Delay \$5 \$0 \$8 \$8 NA NA Subtotal-Oprtng Trip Related \$37 \$77 \$52 \$57 NA NA Total # Cars in fleet 36 68 48 91 NA NA Total Annual Car-days 13,140 24,820 17,520 33,215 NA. NA 12,264 Adjusted Total Car-days 9,198 17,374 23,251 NA NA Days per Trip (min. of 1) . З <u>3</u> <u>3</u> <u>3</u> <u>3</u>

\$6,561

\$4,392

\$446,146

\$298,656

\$10,953

\$65,184

\$4,432,512 \$1,406,592

\$744,802

\$4,389

\$1,890

\$210,650

\$90,720

\$6,279

\$29,304

\$301,370

\$4,870

\$2,196

\$443,196

\$199,836

\$7,066

\$32,592

\$643,032

\$2,965,872

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

\$3,150

\$1,464

\$113,408

\$52,704

\$4,614

\$21,728

\$166,112

\$782,208

Annual Opring Trip Related per Car

Annual Oprtng Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Annual Non-Trip Related per Car

Total OPRTNG COST per Car

Total CAPITAL COST per Car

C2.3 City of New Orleans, New Orleans-Chicago

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

924

Length in Hours:

18.33

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	otherwise)						
•	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	
Quantity of cars	1 -	4	1	. 1	1	1	
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17	
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3	
Car Waste Data (per car)		•	•		·		
Black Water:				J			
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88	
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00	
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10	
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7	
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063	
Flush Fluids/day (gals)	39.8	23.3	21.3	22.3	23.8	10.7	
Capacity Req'd/day (gals)	58.5	34.2	31.4	32.8	35.0	15.7	
Adj. Capacity Req'd w/ Buffer	73.1	42.8	39.2	41.0	43.7	19.6	
Tank Capacity per Car (gals)	235	235	235	235	235	235	
Continuous Service Hours Supported As a percentage of 72 hours	77 107%	132 183%	144 200%	137 191%	129 179%	287 399%	
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33	
Service Days Supported	4.2	7.2	7.8	7.5	7.0	15.7	
As a percentage of 3 days	140.26%	239.61%	261.39%	250.02%	234.72%	522.78%	
Consecutive Trips before pumpout	4.0	7.0	7.0	7.0	7.0	15.0	
CAPITAL COSTS							
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$7,500</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>	
- Total Equip Cost	\$26,000	\$26,000	\$28,500	\$26,000	\$26,000	\$63,500	
Equipment Installation	•						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>	
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336	
Total Capital Cost	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836	

Route Number:

Length in Miles:

City of New Orleans

New Orleans-Chicago 924

18.33

Length in Hours: Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted ot	54000	4600	4000	9400	28000	2400(30)
·	<u>Horizon</u>	<u>Coach</u>	Coach (HDCP)	Dome Coach	Amiounge II	Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:			•			
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>3</u>	3	3	3	3	3
Servicing Cost/Year	\$432	\$432	\$648	\$432	\$43 <u>2</u>	\$3,672
Annual spare parts cost per yr	\$780	\$780	\$85 <u>5</u>	\$780	\$780	\$1,905
Total- Opring Non-Trip Related	\$1,212	\$1,212	\$1,503	\$1,212	\$1,212	\$5,577
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing					r	
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.59	\$0.34	\$0.31	\$0.33	\$0.35	\$0.16
- Pump out minutes	0.98	0.57	0.52	0.55	0.58	0.26
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.99</u>	<u>\$0.58</u>	\$0. <u>53</u>	<u>\$0.56</u>	<u>\$0.59</u>	<u>\$0.27</u>
Subtotal- End of Day/Trip Srvc	\$13.58	\$12.92	\$18.85	\$12.89	\$12.94	\$102.42
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	.0
- # of stops req'd	0	0	0	0	<i>9</i> 0	0
- Pump out minutes	0.0	. 0.0	0.0	0.0	. 0.0	0.0
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	. 0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Opring Trip Related	\$14	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,470	\$3,302	\$4,816	\$3,292	\$3,307	\$26,169
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$1,503	\$1,212	\$1,212	\$5,577
Annual Oprtng Trip Related per Car Type	\$357,365	\$257,574	\$101,126	\$39,509	\$82,679	\$2,145,880
Annual Non-Trip Related per Car Type	<u>\$124,836</u>	<u>\$94,536</u>	<u>\$31.563</u>	<u>\$14.544</u>	\$30,300	<u>\$457,314</u>
Total OPRTNG COST per Car	\$4,682	\$4,514	\$6,319	\$4,504	\$4,519	\$31,746
Total CAPITAL COST per Car	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$482,201 \$2,885,648	\$352,110 \$2,185,248	\$132,689 \$646,884	\$54,053 \$336,192	\$112,979 \$700,400	\$2,603,194 \$5,726,552

Route Number:

City of New Orleans

New Orleans-Chicago

924

Length in Miles: Length in Hours:

18.33

Expected Trips per Day:

1

Manufacturer:

Monogram Self-Cont'd Recirc

Equipment:

Scenario:

Expected

* All data on per car basis (unless noted of	otherwise)					
•	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge []</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	` 1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	. 46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Req'd/day (gals)	28.1	16.5	15.1	15.8	16.8	7.5
Adj. Capacity Req'd w/ Buffer	35.1	20.6	18.9	19.7	21.0	9.4
Tank Capacity per Car (gals)	27	. 27	40.5	27	. 27	229.5
Continuous Service Hours Supported As a percentage of 72 hours	18 26%	31 44%	52 72%	. 33 46%	31 43%	584 811%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	1.0	1.7	2.8	1.8	1.7	31.9
As a percentage of 3 days	33.53%	57.27%	93.72%	59,76%	56.10%	1062.14%
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	1.0	31.0
CAPITAL COSTS						4
Collection System per Car	\$0	\$0	\$0	. \$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$9,750</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>
- Total Equip Cost	\$6,500	\$6,500	\$9,750	\$6,500	\$6,500	\$55,250
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$576	\$576	\$864	\$576	\$576	\$4,896
Total Capital Cost	· \$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146

#58

Route Number:

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago 924

Length in Hours: Expected Trips per Day: 18.33

Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted on	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$864	\$576	\$576	\$4,896
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$2,592	\$1,728	\$1,728	\$14,688
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$293</u>	<u>\$195</u>	<u>\$195</u>	<u>\$1,658</u>
Total- Oprtng Non-Trip Related	\$1,923	\$1,923	\$2,885	\$1,923	\$1,923	\$16,346
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing				•		
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	*					
- Pump out Cost	\$0.28	\$0.16	\$0.15	\$0.16	\$0.17	\$0.08
- Pump out minutes	0.47	0.27	0.25	0.26	0.28	0.13
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.62</u>	<u>\$0.36</u>	<u>\$0.33</u>	<u>\$0.35</u>	<u>\$0.37</u>	<u>\$0.17</u>
Subtotal- End of Day/Trip Srvc	\$12.90	\$12.53	\$18.48	\$12.50	\$12.54	\$102.24
Train Delay:		_	_	_	_	_
- Pump out volume req'd	0	0	. 0	0	0	0
-# of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	0.0	<u>0,0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0 210	\$0 <b>1</b> 40	\$0 <b>2</b> 10	\$0	\$0
Subtotal- Oprtng Trip Related	\$13	. \$13	\$18	\$13	\$13	\$102
Total # Cars in fleet	103	<sub>.</sub> 78	21	12 .	. 25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	1	1	. 1	1	1	1
Annual Oprtng Trip Related per Car	\$3,296	\$3,201	\$4,722	\$3,195	\$3,203	\$26,123
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$2,885	\$1,923	\$1,923	\$16,346
Annual Oprtng Trip Related per Car Type	\$339,478	\$249,645	\$99,170	\$38,340	\$80,085	\$2,142,060
Annual Non-Trip Related per Car Type	<u>\$198,069</u>	<u>\$149,994</u>	<u>\$60,575</u>	<u>\$23,076</u>	<u>\$48,075</u>	<u>\$1,340,331</u>
Total OPRTNG COST per Car	\$5,219	\$5,124	\$7,607	\$5,118	\$5,126	\$42,468
Total CAPITAL COST per Car	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$537,547 \$728,828	\$399,639 \$551,928	\$159,744 \$222,894	\$61,416 \$84,912	\$128,160 \$176,900	\$3,482,391 \$4,931,972

Route Number:

Length in Miles:

City of New Orleans

New Orleans-Chicago

924

Length in Hours:

18.33

Expected Trips per Day:

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Expected

* All data on per car basis (unless noted of						
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge (i</u>	2400(30) <u>Sleeper 10-6</u>
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	<b>7</b> .7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	108.6	63.6	58.3	60.9	64.9	29.1
Capacity Req'd/day (gals)	111.1	65.0	59.6	62.3	66.4	29.8
Adj. Capacity Req'd w/ Buffer	138.8	81.3	74.5	77.9	83.0	37.2
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	52 72%	89 123%	97 134%	92 128%	·87 121%	193 268%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	. 18.33
Service Days Supported	2.8	4.8	5.3	5.0	4.7	10.5
As a percentage of 3 days	94.31%	161.12%	175.76%	168.12%	157.83%	351.53%
Consecutive Trips before pumpout	2.0	4.0	5.0	5.0	4.0	10.0
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	\$10,000	<u>\$15,000</u>	<u>\$10,000</u>	\$10,000	<u>\$85,000</u>
- Total Equip Cost	\$20,000	\$20,000	\$25,000	\$20,000	\$20,000	\$95,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$5,472
Total Capital Cost	. \$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472

Route Number:

City of New Orleans

Length in Miles:

New Orleans-Chicago

Length in Hours:

924 18.33

Expected Trips per Day:

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Expected

' All data on per car basis (unless noted other	wise)				•	
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
PERATING COSTS						
Non-Trip Related Costs:	0444	<b>6444</b>	4040	04.44	0444	A4 884
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>3</u>	<u>3</u>	3	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$648 8750	\$432	\$432	\$3,672
Annual spare parts cost per yr	\$600 *1.000	\$600 *1.000	<u>\$750</u>	\$600 \$1,000	\$600 \$1,000	\$2,850
Total- Opring Non-Trip Related	\$1,032	\$1,032	\$1,398	\$1,032	\$1,032	\$6,522
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing				•		
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.11	\$0.65	\$0.60	\$0.62	\$0.66	. \$0.30
- Pump out minutes	1.85	1.08	0.99	1.04	1.11	0.50
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$1.89</u>	<u>\$1.11</u>	<u>\$1.01</u>	<u>\$1.06</u>	<u>\$1.13</u>	<u>\$0.51</u>
Subtotal- End of Day/Trip Srvc	\$15.00	\$13.76	\$19.61	\$13.68	\$13.79	\$102.80
Train Delay:						
- Pump out volume req'd	0	0	. 0	0	0	0
- # of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0,0</u>	<u>0.0</u>	<u>0.0</u>	0.0	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$15	\$14	\$20	\$14	\$14	\$103
otal # Cars in fleet	103	78	. 21	12	25	82
otal Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	1	1	1	· 1	1	1
Annual Oprtng Trip Related per Car	\$3,832	\$3,514	\$5,010	\$3,496	\$3,524	\$26,267
Annual Non-Trip Related per Car	\$1,032	\$1,032	\$1,398	\$1,032	\$1,032	\$6,522
Annual Oprtng Trip Related per Car Type	\$394,714	\$274,130	\$105,212	\$41,950	\$88,096	\$2,153,858
Annual Non-Trip Related per Car Type	\$106,296	\$80,496	\$29,358	\$12.384	\$25,800	<u>\$534,804</u>
Total OPRTNG COST per Car	\$4,864	\$4.546	\$6.408	\$4,528	\$4,556	\$32,789
•			• - •		\$21,152	\$100,472
	<u>\$106,296</u>	•	\$29,358	<u>\$12,384</u>	<u>\$25,800</u> \$4,556	) }

Route Number:

City of New Orleans

New Orleans-Chicago

Length in Miles: Length in Hours: 924

Expected Trips per Day:

18.33 1

Manufacturer:

Equipment:

Evac Ultimate

Scenario:

Expected

* All data on per car basis (unless noted of	herwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	. 1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
				•		
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	. 7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	29.7	17.4	15.9	16.6	17.7	8.0
Capacity Req'd/day (gals)	50.8	29.7	27.3	28.5	30.3	13.6
Adj. Capacity Req'd w/ Buffer	63.5	37.2	34.1	35.6	37.9	17.0
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	76 105%	129 179%	141 196%	135 187%	127 176%	282 391%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	4.1	7.0	7.7	7,4	6.9	15.4
As a percentage of 3 days	137.50%	234.90%	256.26%	245.12%	230.11%	512.51%
Consecutive Trips before pumpout	4.0	7.0	7.0	7.0	6.0	15.0
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$8,700</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>
- Total Equip Cost	\$17,800	\$17,800	\$20,700	\$17,800	\$17,800	\$61,300
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u> `	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636

Route Number:

Amtrak Route: Origin/Destination: Length in Miles:

City of New Orleans

New Orleans-Chicago

924

Length in Hours: Expected Trips per Day: 18.33 1

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:	Expected					
* All data on per car basis (unless noted of	therwise)					
,	54000 Horizon	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amiounge li	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:	<del></del>					
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$43 <u>2</u>	\$648	\$432	\$432	\$3,6 <b>72</b>
Annual spare parts cost per yr	<u>\$534</u>	<u>\$534</u>	\$62 <u>1</u>	\$53 <u>4</u>	<u>\$534</u>	\$1,839
Total- Opring Non-Trip Related	\$966	\$966	\$1,269	\$966	\$966	\$5,511
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		,			5	
- Cleaning	\$12	\$12	\$18	. \$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.51	\$0.30	\$0.27	\$0.28	\$0.30	\$0.14
- Pump out minutes	0.85	0.50	0.45	0.47	0.51	0.23
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.86</u>	<u>\$0.51</u>	\$0.46	<u>\$0.48</u>	<u>\$0.52</u>	<u>\$0.23</u>
Subtotal- End of Day/Trip Srvc	\$13.37	\$12.80	\$18.74	\$12.77	\$12.82	\$102.37
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	Ó	0	0	0	0	0
- # of stops req'd	0	0	0	0	. 0	. 0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	- \$0	\$0
Subtotal- Oprtng Trip Related	\$13	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	1	1	1	. 1	1	1
Annual Opring Trip Related per Car	\$3,416	\$3,271	\$4,787	\$3,263	\$3,275	\$26,155
Annual Non-Trip Related per Car	\$966	\$966	\$1,269	\$966	\$966	\$5,511
Annual Opring Trip Related per Car Type	\$351,883	\$255,144	\$100,527	\$39,150	\$81,884	\$2,144,709
Annual Non-Trip Related per Car Type	<u>\$99,498</u>	<u>\$75,348</u>	<u>\$26,649</u>	<u>\$11,592</u>	<u>\$24,150</u>	<u>\$451,902</u>
Total OPRTNG COST per Car	\$4,382	\$4,237	\$6,056	\$4,229	\$4,241	\$31,666
Total CAPITAL COST per Car	\$19,816	\$19,816	\$23,004	\$19,816	-\$19,816	\$67,636
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$451,381 \$2,041,048	\$330,492 \$1,545,648	\$127,176 \$483,084	\$50,742 \$237,792	\$106,034 \$495,400	\$2,596,611 \$5,546,152

Route Number:

Length in Miles: Length in Hours: City of New Orleans

New Orleans-Chicago

924

Expected Trips per Day:

18.33

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Expected

\* All data on per car basis (unless noted otherwise) 54000 4600 4000 9400 28000 2400(30) Coach (HDCP) Dome Coach Sleeper 10-6 Amiounge II <u>Horizon</u> Coach Quantity of cars 1 4 1 1 1 48 46 .49 22 Capacity (# people) - seated 82 44 2 2 3 2 2 17 Toilets per car Average persons/toilet on train 41.0 24.0 14.7 23.0 24.5 1.3 Car Waste Data (per car) Black Water: Human Waste/day (gals) 36.82 21.55 19.76 20.65 22.00 9.88 7.00 7.00 7.00 7.00 7.00 7.00 # Flushes/Person-day 1.10 1.10 1.10 1.10 1.10 Flush efficiency adjustment 1.10 7.7 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 44.6 Flush Fluids/day (gals) 166.2 97.3 89.2 93.2 99:3 Capacity Req'd/day (gals) 155.0 90.7 83.2 87.0 92.6 41.6 52.0 Adj. Capacity Req'd w/ Buffer 193.8 113.4 104.0 108.7 115.8 100 450 Tank Capacity per Car (gals) 100 100 100 100 21 29% 208 Continuous Service Hours Supported 12 17% 21 29% 23 32% 22 31% 289% As a percentage of 72 hours 18.33 18.33 18.33 Probable Service Hours per Day 18.33 18.33 18.33 Service Days Supported 0.7 1.2 1.3 1.2 1.1 11.3 38.48% 41.97% 40.15% 37.69% 377.77% As a percentage of 3 days 22.52% Consecutive Trips before pumpout 0.0 1.0 1.0 1.0 1.0 11.0 **CAPITAL COSTS** \$8,000 \$8,000 \$36,000 Collection System per Car \$8,000 \$8,000 \$8,000 Toilet Cost per Car \$6,000 \$6,000 \$9,000 \$6,000 \$6,000 \$51,000 \$14,000 - Total Equip Cost \$14,000 \$14,000 \$17,000 \$14,000 \$87,000 Equipment Installation \$576 \$576 \$576 \$2,592 Collection System per Car \$576 \$576 \$576 Toilet Cost per Car <u>\$576</u> <u>\$864</u> <u>\$576</u> <u>\$576</u> \$4,896 - Total Installation Cost \$1,152 \$1,152 \$1,440 \$1,152 \$1,152 \$7,488 **Total Capital Cost** \$15,152 \$15,152 \$18,440 \$15,152 \$15,152 \$94,488

Route Number:

#58

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago 924

Length in Hours:

18.33 1

Expected Trips per Day: Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Expected

* All data on per car basis (unless noted other	nerwise)					
This death of the case basis (alloss holes on	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS						
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$648	\$432	\$432	\$3,672
Annual spare parts cost per yr	<u>\$420</u>	<u>\$420</u>	<u>\$510</u>	<u>\$420</u>	<u>\$420</u>	\$2,61 <u>0</u>
Total- Opring Non-Trip Related	\$852	\$852	\$1,158	\$852	\$852	\$6,282
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	. \$0	\$0	\$0	\$0
Pump out and Disposal	•	,		• •	·	•
- Pump out Cost	\$4.75	\$0.91	\$0.83	\$0.87	\$0.93	\$0.42
- Pump out minutes	0.92	1.51	1.39	1.45	1.54	0.69
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	\$2.64	\$1.5 <u>4</u>	<u>\$1.41</u>	\$1.48	<u>\$1.57</u>	\$0.71
Subtotal- End of Day/Trip Srvc	\$19.39	\$14.45	\$20.25	\$14.35	\$14.50	\$103.12
Train Delay:						
- Pump out volume reg'd	100	0	0	0	0	0
- # of stops reg'd	1	0	0	0	0	0
- Pump out minutes	1.7	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	<u>0.0</u>
- Total Time Delay(mins/car)	9				0	
Average Cost Per Delay	\$5	\$0	\$0	\$0	\$0	\$0
Subtotal- Opring Trip Related	\$25	\$14	\$20	\$14	\$15	\$103
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$6,282	\$3,692	\$5,173	\$3,666	\$3,705	\$26,348
Annual Non-Trip Related per Car	*\$852	\$852	\$1,158	\$852	\$852	\$6,282
Annual Oprtng Trip Related per Car Type	\$647,007	\$287,976	\$108,630	\$43,991	\$92,626	\$2,160,529
Annual Non-Trip Related per Car Type	<u>\$87,756</u>	<u>\$66,456</u>	<u>\$24,318</u>	<u>\$10,224</u>	<u>\$21,300</u>	<u>\$515,124</u>
Total OPRTNG COST per Car	\$7,134	\$4,544	\$6,331	\$4,518	\$4,557	\$32,630
Total CAPITAL COST per Car	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488
Total OPRTNG COST for all cars	\$734,763	\$354,432	\$132,948	\$54,215	\$113,926	\$2,675,653
Total CAPITAL COST for all cars	\$1,560,656	\$1,181,856	\$387,240	\$181,824	\$378,800	\$7,748,016

Route Number:

#58

C2.4 Silver Meteor, New York-Tampa

#87-88 Route Number:

Amtrak Route:

Origin/Destination: Length in Miles:

New York-Tampa

Silver Meteor

1,270 23.28

Length in Hours: Expected Trips per Day:

Monogram

Manufacturer: Equipment:

Modified Vacuum

Expected Scenario:

Cuantity of cars	* All data on per car basis (unless noted of	herwise)		2400(30)	2080	NA	
Capacity (#) people) - seated   59   49   22   40   34   NA   NA   Capacity (#) people) - seated   59   49   22   17   32   17   NA   NA   NA   NA   Capacity (#) people) - seated   2   2   17   32   17   NA   NA   NA   NA   NA   NA   NA   N		25000 Amonach II	28000 Amlounge II		Slumbercoach 24	2300 Viewliner-Sleeper	NA
Capacity (dears   2				,			NA
Capacity (# people) - sealed   2							
Parameter   Para							
Car Waste Data (per car)			24.5	1.3	1.3	2.0	NA
Black Water:   26.49   22.00   9.88   17.96   15.27   NA	Average persons/toller on train						
Human Waste/day (gals)	Car Waste Data (per car)						
Human Waste/day (gals)	Black Water:			0.00	17.96	15.27	NA
# Flushes/Person-day 7,00 7,00 7,00 1,10 1,10 1,10 1,10 1,10	Human Waste/day (gals)						
Flush efficiency adjustment	# Flushes/Person-day			•	•		
Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.	Flush efficiency adjustment	• •					
Flush Fluids/flush (gals)	Adj. # Flushes/Person-day						0.063
Flush Fluids/day (gals)   28.6   23.8   10.7   10.7	Flush Fluids/flush (gals)	_					.NA
Capacity Req'd/day (gals) 53.5 44.4 19.9 30.2 38.5 NA Adj. Capacity Req'd w Buffer 66.8 55.5 24.9 45.3 38.5 235  Tank Capacity per Car (gals) 235 235 235 235 235 235  Continuous Service Hours Supported 84 102 226 124 146 NA As a percentage of 72 hours 117% 141% 314% 173% 203% NA  Probable Service Hours per Day 23.28 23.28 23.28 23.28 23.28 23.28  Service Days Supported 3.6 4.4 9.7 5.3 6.3 NA As a percentage of 3 days 120.85% 145.51% 324.10% 178.25% 209.71% NA  Consecutive Trips before pumpout 3.0 4.0 9.0 5.0 6.0 NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Callection System per Car \$50.00 \$50.00 \$63,500 \$101,000 \$63,500 NA  Total Equip Cost \$26,000 \$26,000 \$26,000 \$63,500 \$101,000 \$63,500 NA  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Collection System per Car \$5.76 \$5.76 \$4.896 \$9.216 \$4.896 NA  - Total Installation Cost \$20,016 \$6,336 \$111,656 \$69,836 NA  - Total Installation Cost	Flush Fluids/day (gals)	28.6	23.8	10.7	19.4	,,,,,	
Capacity Req'd/day (gals)         53.5         55.5         24.9         45.3         38.5         NA           Adj. Capacity Req'd w/ Buffer         66.8         55.5         2328         23.28         23.28         23.28			44.4	10.0	36.2	30.8	NA
Adj. Capacity Req'd w/ Buffer Tank Capacity per Car (gals)  Continuous Service Hours Supported As a percentage of 72 hours  Probable Service Hours per Day  23.28						38.5	NA
Tank Capacity per Car (gals)         235         235         235         236         124         146         NA           Continuous Service Hours Supported As a percentage of 72 hours         84         102         226         124         146         NA           Probable Service Hours per Day         23.28		=		_	_	235	235
Continuous Service Hours Supported As a percentage of 72 hours         84 117%         102 141%         225 314%         173%         203%         NA           Probable Service Hours per Day         23.28	Tank Capacity per Car (gals)	235	235	200	, 423		
Probable Service Hours per Day         23.28         <	Continuous Service Hours Supported As a percentage of 72 hours						
Service Days Supported         3.6         4.4         9.7         3.5         209.71%         NA           As a percentage of 3 days         120.85%         145.51%         324.10%         178.25%         209.71%         NA           Consecutive Trips before pumpout         3.0         4.0         9.0         5.0         6.0         NA           CAPITAL COSTS           Collection System per Car         \$21,000         \$21,0	Probable Service Hours per Day	23.28	23.28	23.21	8 23.28		_
As a percentage of 3 days  120.85%  145.51%  324.10%  178.25%  209.71%  NA  Consecutive Trips before pumpout  3.0  4.0  9.0  5.0  6.0  NA  CAPITAL COSTS  Collection System per Car  \$21,000  \$2	o I Davis Ourmented	3.6	4,4	9.7	7 5.3		
Consecutive Trips before pumpout  3.0  4.0  9.0  5.0  6.0  NA  CAPITAL COSTS  Collection System per Car  \$21,000  \$21,00	Service Days Supported		145.519	% 324.10	)% 178.25%	6 209.71%	NA
Consecutive Trips before pumpout         3.0         4.0         9.0         5.0           CAPITAL COSTS         \$21,000	As a percentage of 5 days	,20,00					
Collection System per Car         \$21,000         \$21,0	Consecutive Trips before pumpout	3.0	4.0	9.	0 5.0	6.0	NA
Collection System per Car         \$21,000         \$21,0	CAPITAL COSTS					<b>*</b> 04.000	\$21,000
Toilet Cost per Car \$5,000 \$5,000 \$63,500 \$101,000 \$63,500 NA  - Total Equip Cost \$26,000 \$26,000 \$63,500 \$101,000 \$63,500 NA  Equipment Installation \$1,440	*· · · · · · · · · · · · · · · · · · ·	\$21,000	\$21,000		-		
- Total Equip Cost \$26,000 \$26,000 \$63,500 \$101,000 \$00,500 \$101,000 \$11,440 \$1		\$5,00 <u>0</u>	<u>\$5,000</u>			·	_
Equipment Installation         \$1,440	·	\$26,000	\$26,000	) \$63,50	00,101,000	\$63,500	ING
Collection System per Car       \$1,440						64 440	\$1.440
Toilet Cost per Car \$576 \$576 \$4,896 \$5,210 \$10,656 \$6,336 NA - Total Installation Cost \$2,016 \$2,016 \$69,836 \$111,656 \$69,836 NA		\$1,440		•			
- Total Installation Cost \$2,016 \$2,016 \$69,836 \$111,656 \$69,836 NA		<u>\$576</u>		<del>-</del>	<del>-</del>	· <del></del>	
\$60.046 \$20.016 \$69.836 \$111,000 \$009,000 <u></u>		\$2,016		-			
	Total Capital Cost	\$28,016	\$28,010	6 \$69,83	36 \$111,656	909,030	======================================

Silver Meteor

New York-Tampa

1,270

Length in Miles: Length in Hours: Expected Trips per Day:

Total CAPITAL COST per Car

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

23.28

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario: Expected \* All data on per car basis (unless noted otherwise) 28000 2400(30) 2080 2300 NA Slumbercoach 24- Viewliner-Sleeper Amcoach II Amlounge II Sleeper 10-6 **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$1,224 \$2,304 \$1,224 NA <u>3</u> <u>3</u> Frequency per Year 3 3 3 3 NA Servicing Cost/Year \$432 \$432 \$3,672 \$6,912 \$3,672 \$1,905 <u>NA</u> Annual spare parts cost per yr \$780 \$780 <u>\$1,905</u> \$3,030 NA Total- Opring Non-Trip Related \$1,212 \$1,212 \$5,577 \$9,942 \$5,577 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$102 \$192 \$102 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.31 NA - Pump out Cost \$0.53 \$0.44 \$0.20 \$0.36 0.51 NA - Pump out minutes 0.89 0.74 0.33 0.60 NA 0.0 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 \$0.75 \$0.34 \$0.62 \$0.52 <u>NA</u> - Waste Disposal \$0.91 \$192.98 \$102.83 NA \$13.20 \$102.54 Subtotal- End of Day/Trip Srvc \$13.44 Train Delay: 0 0 ٥ 0 0 NA - Pump out volume req'd - # of stops req'd 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 NA 0.0 0.0 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 <u>NA</u> 0 0 0 0 0 NA - Total Time Delay(mins/car) Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 NA \$103 NA Subtotal-Opring Trip Related \$13 \$13 \$103 \$193 25 82 16 2 NA Total # Cars in fleet 119 Total Annual Car-days 43,435 9,125 29,930 5,840 \ 730 NA 6,388 20,951 4,088 511 NA Adjusted Total Car-days 30,404 Days per Trip (min. of 1) 2 2 2 2 2 2 Annual Oprtng Trip Related per Car \$1,717 \$1,686 \$13,099 \$24,653 \$13,137 NA Annual Non-Trip Related per Car \$1,212 \$1,212 \$5,577 \$9,942 \$5,577 NA \$1,074,139 Annual Opring Trip Related per Car Type \$204,370 \$42,153 \$394,448 \$26,274 NA \$159,072 \$11,154 Annual Non-Trip Related per Car Type \$144,228 \$30,300 <u>\$457,314</u> <u>NA</u> \$2,898 \$18,676 \$34,595 \$18.714 NA Total OPRTNG COST per Car \$2,929

\$28,016

\$72,453

\$700,400

\$28,016

\$348,598

\$3,333,904

#87-88

Route Number:

\$69,836

\$1,531,453

\$5,726,552

\$111,656

\$553,520

\$1,786,496

\$69,836

\$37,428

\$139,672

NA

NA

Amtrak Route: Silver Meteor Origin/Destination: New York-Tampa Length in Miles: 1,270 23.28 Length in Hours: Expected Trips per Day: Manufacturer: Monogram

Consecutive Trips before pumpout

CAPITAL COSTS Collection System per Car

Toilet Cost per Car

Equipment Installation Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

- Total Equip Cost

Route Number: #87-88

Equipment:	Self-Cont'd Recirc					
Scenario:	Expected		-			
* All data on per car basis (unless noted	otherwise)					
	25000 <u>Amcoach II</u>	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA NA
Quantity of cars	7	· 1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	. 34 . 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA <sup>-</sup>
Car Waste Data (per car)		•			·	
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	7.00	7.00	7.00	<b>7.00</b> .	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	. 0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	. 0.0	0.0	0.0	0.0	0.0	NA
Capacity Req'd/day (gals)	25.7	21.3	9.6	17.4	14.8	NA
Adj. Capacity Req'd w/ Buffer	32.1	26.7	12.0	21.8	18.5	NA
Tank Capacity per Car (gals)	27	27	229.5	432	229.5	NA
Continuous Service Hours Supported As a percentage of 72 hours	20 28%	24 34%	460 639%	476 661%	298 413%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.9	1.0	19.8	20.5	12.8	NA
As a percentage of 3 days	28.89%	34.78%	658.47%	681.71%	426.07%	NA NA

1.0

\$0

\$0

<u>\$576</u>

\$576

\$7,076

\$6,500

\$6,500

19.0

\$0

\$0

\$55,250

\$55,250

\$4,896

\$4,896

\$60,146

20.0

\$0

\$0

\$9,216

\$9,216

\$113,216

\$104,000

\$104,000

12.0

\$0

\$0

\$55,250

\$55,250

<u>\$4,896</u>

\$4,896

\$60,146

NA

\$0

<u>NA</u>

NA

\$0

<u>NA</u> NA

NA

1

0.0

\$0

\$0

<u>\$576</u>

\$576

\$7,076

\$6,500

\$6,500

Length in Miles:

Silver Meteor

New York-Tampa

1,270 23.28

Length in Hours: Expected Trips per Day:

Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Expected

	25000 Amcoach II	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	N/ N/
OPERATING COSTS	·	<del></del>				
Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$4,896	\$9,216	\$4,896	. N
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$14,688	\$27,648	\$14,688	N/
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$1,658</u>	\$3,120	<u>\$1,658</u>	<u>N</u>
Total- Opring Non-Trip Related	\$1,923	\$1,923	\$1 <u>6,346</u>	\$30,768	\$16,346	N/
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	N
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$4.20	\$0.21	\$0.10	\$0.17	\$0.15	N/
- Pump out minutes	0.00	0.36	0.16	0.29	0.25	N
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	N/
- Waste Disposal	\$Ò.57	\$0.47	\$0.21	- \$0.38	<b>\$0.33</b>	<u>N</u>
Subtotal- End of Day/Trip Srvc	\$16.77	\$12.68	\$102.31	\$192.56	\$102.47	N
Train Delay:	•					
- Pump out volume reg'd	27	0	0	0	0	N/
- # of stops reg'd	1	0	0	0	0	N/
- Pump out minutes	0.5	0.0	0.0	0.0	0.0	N
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	N/
- Total Time Delay(mins/car)	7	0		-0	0	N/
Average Cost Per Delay	\$4	\$0	\$0	\$0	\$0	N/
Subtotal- Opring Trip Related	\$21	\$13	\$102	\$193	\$102	N/
Total # Cars in fleet	119	25	82	16	2	N
Total Annual Car-days	43,435	9,125	29,930	5,840	730	N
Adjusted Total Car-days	30,404	6,388	20,951	4,088	511	N/
Days per Trip (min. of 1)	2	2	2	2	<u>2</u>	2
Annual Oprtng Trip Related per Car	\$2,713	\$1,620	\$13,070	\$24,599	\$13,091	N
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$16,346	\$30,768	\$16,346	N
Annual Oprtng Trip Related per Car Type	\$322,825	\$40,506	\$1,071,713	\$393,587	\$26,182	, N
Annual Non-Trip Related per Car Type	<u>\$228,837</u>	<u>\$48,075</u>	<u>\$1,340,331</u>	\$492,288	<u>\$32,691</u>	<u>N</u>
Total OPRTNG COST per Car	\$4,636	\$3,543	\$29,415	\$55,367	\$29,437	N
Total CAPITAL COST per Car	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	N/

Route Number:

#87-88

Silver Meteor

eteor Route Number:

#87-88

Origin/Destination: Length in Miles: New York-Tampa 1,270

Length in Hours:

23.28 1

Expected Trips per Day:

iaranhar

Manufacturer: Equipment: Microphor Gravity

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	herwise)					
	25000 Amcoach II	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	. 1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA .
Car Waste Data (per car)					•	
Black Water:				•		
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1,10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	78.1	64.9	29.1	53.0	45.0	NA
Capacity Req'd/day (gals)	101.5	84.3	37.8	68.8	58.5	NA
Adj. Capacity Req'd w/ Buffer	126.9	105.4	47.3	86.0	73.1	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Sérvice Hours Supported As a percentage of 72 hours	57 79%	68 95%	152 211%	84 116%	98 137%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	2.4	2.9	6.5	3.6	4.2	NA
As a percentage of 3 days	81.26%	97.85%	217.93%	4 119.86%	41.01%	NA
Consecutive Trips before pumpout	2.0	2.0	6.0	3.0	4.0	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$85,000</u>			<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$95,000	\$170,000	\$95,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>			<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	. \$5,472			NA
Total Capital Cost	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA

Silver Meteor

Route Number:

#87-88

Origin/Destination: Length in Miles:

New York-Tampa 1,270 23.28

Length in Hours: Expected Trips per Day:

1

Manufacturer: Equipment:

Microphor Gravity

Scenario:

Expected

	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Siumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	<i>N</i>
OPERATING COSTS	Amodern	Announge n	<u>Olecper 10-0</u>	Old III DCTC SCIOT E T	Vicumor Gioapor	_
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	1
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	. <u>3</u>	<u>3</u>	j
Servicing Cost/Year	\$432	\$432	\$3,672	\$6,912	\$3,672	1
Annual spare parts cost per yr	<u>\$600</u>	. <u>\$600</u>	<u>\$2,850</u>	<u>\$5,100</u>	<u>\$2,850</u>	7
Total- Opring Non-Trip Related	\$1,032	\$1,032	\$6,522	\$12,012	\$6,522	
Trip Related Costs:			,			
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	4
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$
Pump out and Disposal						
- Pump out Cost	\$1.01	\$0.84	\$0.38	\$0.69	\$0.58	ı
- Pump out minutes	1.69	1.40	0.63	1.15	0.97	1
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	١
- Waste Disposal	\$1.7 <u>3</u>	<b>\$1.43</b>	\$0.64	<u>\$1.17</u>	\$0.99 <sub>.</sub>	1
Subtotal- End of Day/Trip Srvc	\$14.74	\$14.28	\$103.02	\$193.86	\$103.58	١
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	ı
- # of stops req'd	0	0	0	0	0	1
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	1
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>0.0</u>	1
- Total Time Delay(mins/car)	0	0	0	0	0	1
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	1
Subtotal- Opring Trip Related	\$15	\$14	\$103	\$194	\$104	<u> </u>
otal # Cars in fleet	119	25	82	16	2	N
otal Annual Car-days	43,435	9,125	29,930	5,840	730	
djusted Total Car-days	30,404	6,388	20,951	4,088	511	
Pays per Trip (min. of 1)	2	<u>2</u>	2	2	<u>2</u>	1
nnual Oprtng Trip Related per Car	\$1,883	\$1,824	\$13,161	\$24,765	\$13,232	N
nnual Non-Trip Related per Car	\$1,032	\$1,032	\$6,522	\$12,012	\$6,522	١
nnual Oprtng Trip Related per Car Type	\$224,085	\$45,593	\$1,079,205	\$396,245	\$26,464	N
nnual Non-Trip Related per Car Type	<u>\$122,808</u>	<u>\$25,800</u>	<u>\$534,804</u>	<u>\$192,192</u>	<u>\$13,044</u>	4
otal OPRTNG COST per Car	\$2,915	\$2,856	\$19,683	\$36,777	\$19,754	١
otal CAPITAL COST per Car	\$21,152	\$21,152	\$100,472	\$179,792	· \$100,472	1

Silver Meteor

New York-Tampa

Length in Miles: Length in Hours: 1.270

Expected Trips per Day:

23.28

Manufacturer:

Evac

Equipment: Scenario:

Ultimate Expected

\* All data on per car basis (unless noted otherwise) 28000 25000 2300 2400(30) 2080 NA Amcoach II Amlounge II Sleeper 10-6 Słumbercoach 24- Viewliner-Sleeper <u>NA</u> Quantity of cars 7 2 NA 1 22 17 40 Capacity (# people) - seated 59 49 34 NA 17 Toilets per car 2 2 32 NA 1.3 2.0 NA Average persons/toilet on train 29.5 24.5 1.3 Car Waste Data (per car) Black Water: Human Waste/day (gals) 9.88 26.49 22.00 17.96 15.27 NA 7.00 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 7.7 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 Flush Fluids/day (gals) 21.4 17.7 8.0 14.5 12.3 NA Capacity Req'd/day (gals) 46.4 38.5 17.3 31.5 26,7 NA Adj. Capacity Req'd w/ Buffer 58.0 48.2 21.6 39.3 33.4 NA Tank Capacity per Car (gals) 200 200 200 200 200 200 Continuous Service Hours Supported 100 222 144 As a percentage of 72 hours 115% 138% 308% 170% 199% NA 23.28 23.28 23.28 Probable Service Hours per Day 23.28 23.28 23.28 9.5 5.2 6.2 Service Days Supported 3.6 4.3 NA 317.74% 174.75% 205.59% As a percentage of 3 days 118.48% 142.66% NA Consecutive Trips before pumpout 3.0 4.0 9.0 5.0 6.0 NA CAPITAL COSTS Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Toilet Cost per Car \$5,800 \$5,800 \$49,300 \$92,800 \$49,300 NA - Total Equip Cost \$17,800 \$17,800 \$61,300 \$104,800 \$61,300 NA Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$576 <u>\$576</u> \$4,896 <u>\$9,216</u> \$4,896 <u>NA</u> - Total Installation Cost \$2,016 \$2,016 \$6,336 \$10,656 \$6,336 NA Total Capital Cost \$19,816 \$67,636 \$115,456 \$67,636 NA \$19,816

Route Number:

#87-88

Origin/Destination: New York-Tampa Length in Miles: 1,270 23.28 Length in Hours: Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Scenario: Expected \* All data on per car basis (unless noted otherwise) 28000 2400(30) 2080 2300 NA 25000 Slumbercoach 24- Viewliner-Sleeper <u>NA</u> Amcoach II Amiounge II Sleeper 10-6 **OPERATING COSTS** Non-Trip Related Costs: \$1,224 NA \$2,304 \$144 \$144 \$1,224 Labor cost/major servicing 3 3 3 Frequency per Year \$6,912 \$3,672 NA \$432 \$432 \$3,672 Servicing Cost/Year <u>NA</u> <u>\$534</u> \$534 \$1,839 \$3,144 \$1,839 Annual spare parts cost per yr \$966 \$10,056 \$5,511 NA Total- Opring Non-Trip Related \$966 \$5,511 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$192 \$102 \$102 NA \$12 \$12 - Cleaning \$0 \$0 \$0 \$0 - Light Repair \$0 \$0 Pump out and Disposal \$0.17 \$0.31 \$0.27 NA \$0.46 \$0.39 - Pump out Cost - Pump out minutes 0.77 0.64 0.29 0.52 0.45 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 \$0.29 \$0.45 NA - Waste Disposal \$0.79 \$0.66 \$0,53 \$13.25 \$13.04 \$102.47 \$192.85 \$102.72 NA Subtotal- End of Day/Trip Srvc Train Delay: 0 0 NA - Pump out volume req'd 0 0 0 0 NA 0 - # of stops reg'd 0 0 0 0.0 0.0 NA 0.0 0.0 0.0 - Pump out minutes - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 <u>NA</u> 0 0 0 0 NA - Total Time Delay(mins/car) O \$0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 \$193 \$103 NA Subtotal- Oprtng Trip Related \$13 \$13 \$102 82 16 2 NA Total # Cars in fleet 119 25 29,930 5.840 730 NA 43,435 9,125 Total Annual Car-days 30,404 6,388 20.951 4.088 511 NΑ Adjusted Total Car-days 2 2 2 2 Days per Trip (min. of 1) <u>2</u> 2 \$13,090 \$24,637 \$13,123 NA Annual Oprtng Trip Related per Car \$1,693 \$1,666 \$966 \$5,511 \$10,056 \$5,511 NA Annual Non-Trip Related per Car \$966 Annual Opring Trip Related per Car Type \$201,476 \$41,649 \$1,073,395 \$394,184 \$26,245 NA Annual Non-Trip Related per Car Type \$24,150 \$451,902 \$160,896 \$11,022 <u>NA</u> \$114,954 \$18,634 NA Total OPRTNG COST per Car \$2,659 \$2,632 \$18,601 \$34,693

Route Number:

#87-88

Amtrak Route:

Total CAPITAL COST per Car

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Silver Meteor

\$19,816

\$65,799

\$495,400

\$67,636

\$1,525,297

\$5,546,152

\$115,456

\$555,080

\$1,847,296

\$67,636

\$37,267

\$135,272

NA

NA

NA

\$19,816

\$316,430

\$2,358,104

Length in Miles:

Silver Meteor

New York-Tampa 1,270 23.28

Length in Hours:

1

Expected Trips per Day:

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Expected

* All data on per car basis (unless noted of	therwise)					
	25000 <u>Amcoach II</u>	28000 Amiounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated	59	49	22	40	34	. NA
Toilets per car	2	2	17	32	17	· NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA .
Car Waste Data (per car)			,			
Black Water:						•
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	119.6	99.3	44.6	81.1	68.9	NA
Capacity Req'd/day (gals)	141.7	117.7	52.8	96.0	81.6	NA
Adj. Capacity Req'd w/ Buffer	177.1	147.1	66.0	120.1	102.0	NA
Tank Capacity per Car (gals)	100	100	450	800	450	NA
Continuous Service Hours Supported As a percentage of 72 hours	14 19%	· 16 23%	164 227%	160 222%	106 147%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.6	0.7	7.0	6.9	4.5	NA
As a percentage of 3 days	19.41%	23.37%	234.20%	228.99%	151.54%	NA
Consecutive Trips before pumpout	0.0	0.0	7.0	6.0	4.0	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$36,000	\$64,000	\$36,000	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$51,000</u>	\$96,000	<u>\$51,000</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$87,000	\$160,000	\$87,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$2,592	\$4,608	\$2,592	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	NA
- Total Installation Cost	\$1,152	\$1,152	\$7,488	\$13,824	\$7,488	NA
Total Capital Cost	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	NA NA

Route Number:

#87-88

Amtrak Route: Silver Meteor Route Number: #87-88 Origin/Destination: New York-Tampa 1,270 Length in Miles: 23.28 Length in Hours: Expected Trips per Day: Manufacturer: Railtech Equipment: WTS 8300 Scenario: Expected \* All data on per car basis (unless noted otherwise) 2080 2300 NA 25000 28000 2400(30) Slumbercoach 24- Viewliner-Sleeper <u>NA</u> Amcoach II Sleeper 10-6 <u>Amlounge II</u> **OPERATING COSTS** Non-Trip Related Costs: \$144 \$144 \$1,224 \$2,304 \$1,224 NA Labor cost/major servicing Frequency per Year 3 <u>3</u> 3 3 3 <u>3</u> \$432 \$432 \$3,672 \$6,912 \$3,672 NA Servicing Cost/Year NΑ \$420 \$2,610 \$4,800 \$2,610 Annual spare parts cost per yr \$420 \$852 \$852 \$6,282 \$11,712 \$6,282 NA Total- Opring Non-Trip Related Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$102 NA \$12 \$102 \$192 - Cleaning \$12 \$0 \$0 \$0 \$0 \$0 \$0 - Light Repair Pump out and Disposal - Pump out Cost \$4:62 \$4.38 \$0.53 \$0.96 \$0.82 NA - Pump out minutes 0.69 0.29 0.88 1.60 1.36 NA NA - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 \$1.63 NA - Waste Disposal \$2.41 \$2.00 \$0.90 <u>\$1.39</u> \$104.20 \$194.59 NA Subtotal- End of Day/Trip Srvc \$19.02 \$18.38 \$103.43 Train Delay: 0 NA 100 0 ٥ 100 - Pump out volume req'd 0 0 0 NA - # of stops req'd 1.7 1.7 0.0 0.0 0.0 NA - Pump out minutes - Connect/Disc. minutes <u>7.0</u> <u>7.0</u> 0.0 0.0 0.0 NA 0 0 NA - Total Time Delay(mins/car) 9 9 0 \$5 \$5 \$0 \$0 \$0 NA Average Cost Per Delay \$24 \$103 \$195 \$104 NA Subtotal-Opring Trip Related \$24 NΑ Total # Cars in fleet 119 25 82 16 2 43,435 9,125 29,930 5,840 730 NA Total Annual Car-days Adjusted Total Car-days 30,404 6,388 20,951 4,088 511 NA Days per Trip (min. of 1) 2 2 2 <u>2</u> 2 2 Annual Oprtng Trip. Related per Car \$3,095 \$3,012 \$13,213 \$24,859 \$13,312 NA Annual Non-Trip Related per Car \$852 \$852 \$6,282 \$11,712 \$6,282 NA \$397,748 \$26,624 Annual Oprtng Trip Related per Car Type \$368,273 \$75,298 \$1,083,441 NA \$12,564 Annual Non-Trip Related per Car Type \$101,388 \$21,300 \$515,124 \$187,392 <u>NA</u>

\$3,864

\$15,152

\$96,598

\$378,800

\$19,495

\$94,488

\$1,598,565

\$7,748,016

\$36,571

\$173,824

\$585,140

\$2,781,184

≥ \$3,947

\$469,661

\$1,803,088

\$15,152

Total OPRTNG COST per Car

Total CAPITAL COST per Car

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$19.594

\$94,488

\$39,188

NA

NA

NA

C2.5 Benjamin Franklin, Boston-Philadelphia

Dright/Designation:   Boston-Philadolphis   Langth in Motes:   322   Langth in Hours:   6.55   Exposed Tips per Day:   2	Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Langth in Houra:   6.55   Expregiat Tips per Dary;   2   2	Origin/Destination:	Boston-Philadelphia					
Expendent Trips por Day:	Length in Miles:	322					•
Manufacturer	Length in Hours:	6.55					
Equipment:   Modified Vacuum   Exposted	Expected Trips per Day:	. 2					
*All data on per car basis (unless noted or brewise)         Expected           **All data on per car basis (unless noted or brewise)         20000 Amosach         201000 Amosach         NA         N	Manufacturer:	Monogram		•	•		
All data on per car basis (unless noted otherwise)	Equipment:	Modified Vacuum					
All data on per car basis (unless noted otherwise)	Scenario:	Expected					
	* All data on per car basis (unless noted of	otherwise)		ζ.			
Cuantity of cars	,		21000	20100	NA	NA	NA
Segretary (# people) - seated   53   84   41   NA   NA   NA   NA   NA   NA   NA   N		<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Tollets per car 2 2 2 2 NA NA NA NA NA Average persons/tollet on train 26.5 42.0 20.5 NA NA NA NA NA Average persons/tollet on train 26.5 42.0 20.5 NA	Quantity of cars	1	1	3	NA	NA	NA
Car Waste Data (per car)							
Black Water:   Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   Flushes/Person-day   7.00	•	26.5	42.0	20.5	NA	NA	NA
Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   # Flushes/Person-day   7.00	Car Waste Data (per car)						
Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   # Flushes/Person-day   7.00	Black Water:			•			
# Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.0		23.80	37.72	18.41	NA	NA	NA
Flush efficiency adjustment	, ,						
Adj. # Flushes/Person-day         7.7         40.7         2.2         2.2         1.2         2 <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	•						
Fluish Fluids/flush (gals)         0.063         0.064         0							
Flush Fluids/day (gals)   25.7   40.7   19.9   NA						0.063	
Adj. Capacity Req'd w/ Buffer         33.8         53.5         26.1         NA         NA         NA           Tank Capacity per Car (gals)         235         235         235         235         235         235           Continuous Service Hours Supported As a percentage of 72 hours         167         105         216         NA         NA         NA           As a percentage of 72 hours         13.1		25.7	40.7	19.9	NA	NA	NA
Tank Capacity per Car (gals)         235	Capacity Req'd/day (gals)	27.0	42.8	20.9	NA	NA	NA
Continuous Service Hours Supported 167 105 216 NA	Adj. Capacity Req'd w/ Buffer	33.8	53.5	26.1	NA	NA	NA
As a percentage of 72 hours 232% 146% 300% NA NA NA NA  Probable Service Hours per Day 13.1 13.1 13.1 13.1 13.1 13.1 13.1 13.	Tank Capacity per Car (gals)	235	235	235	235	235	235
Service Days Supported         12.7         8.0         16.5         NA         NA         NA           As a percentage of 3 days         424.86%         268.07%         549.21%         NA         NA         NA           Consecutive Trips before pumpout         25.0         16.0         32.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$21,000 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
As a percentage of 3 days 424.86% 268.07% 549.21% NA NA NA NA NA  Consecutive Trips before pumpout 25.0 16.0 32.0 NA NA NA NA NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$5,000 \$5,000 \$5,000 NA NA NA NA  - Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$576 \$576 NA NA NA NA  - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA NA	Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
As a percentage of 3 days 424.86% 268.07% 549.21% NA NA NA NA NA  Consecutive Trips before pumpout 25.0 16.0 32.0 NA NA NA NA NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$5,000 \$5,000 \$5,000 NA NA NA NA  - Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$576 \$576 NA NA NA NA  - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA NA	Service Days Supported	12.7	8.0	16.5	NA	NA	NA
CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$5,000 \$5,000 \$5,000 NA NA NA NA  - Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$576 \$576 NA NA NA NA NA  - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA NA		424.86%	268.07%	549.21%	S NA	NA	NA
Collection System per Car         \$21,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,000         \$20,0	Consecutive Trips before pumpout	25.0	16.0	32.0	NA	NA	NA
Toilet Cost per Car         \$5,000         \$5,000         \$5,000         NA         NA         NA         NA           - Total Equip Cost         \$26,000         \$26,000         \$26,000         NA         NA         NA         NA           Equipment Installation         Collection System per Car         \$1,440 <td>CAPITAL COSTS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	CAPITAL COSTS						
- Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA NA Equipment Installation  Collection System per Car \$1,440 \$1	Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Equipment Installation         Collection System per Car       \$1,440	Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Collection System per Car         \$1,440	- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA         NA           - Total Installation Cost         \$2,016         \$2,016         \$2,016         NA         NA         NA         NA	Equipment Installation			٠			
- Total Installation Cost \$2,016 \$2,016 NA NA NA NA	Collection System per Car	· ·	•		\$1,440	\$1,440	\$1,440
	•				<del></del>		
Total Capital Cost \$28,016 \$28,016 NA NA NA NA							
	Total Capital Cost	\$28,016	\$28,016	\$28,016	NA	NA NA	NA NA

Amtrak Route: Origin/Destination:	Benjamin Franklin Boston-Philadelphia		Route Number:	#193		
Length in Miles:	322					
Length in Hours:	6.55			,		
Expected Trips per Day:	2					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum			•		
Scenario:	Expected					
* All data on per car basis (unless noted	otherwise)					
	20000 <u>Amcafe</u>	21000 Amcoach	20100 <u>Amclub</u>	NA <u>NA</u>	NA NA	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:				_		
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	· <u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432		NA NA	NA
Annual spare parts cost per yr	<u>\$780</u>	<u>\$780</u>	<u>\$780</u>	<u>NA</u>	<u>NA</u>	. <u>NA</u>
Total- Oprtng Non-Trip Related	\$1,212	\$1,212	\$1,212	NA	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing			•			
- Cleaning	\$12	\$12	\$12	NA	NA	. NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal					,	
- Pump out Cost	\$0.27	\$0.43	\$0.21	NA	NA	NA
- Pump out minutes	0.45	0.71	0.35	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$0.92</u>	<u>\$1.46</u>	<u>\$0.71</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.19	\$13.88	\$12.92	NA	NA	NA
Train Delay:		•				
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	. 0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0		NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>		<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	. 0	0	0		NA	NA
Average Cost Per Delay	\$0	\$0	\$0		NA	NA
Subtotal- Oprtng Trip Related	\$13	\$14	\$13	NA	NA	NA
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	11,498	67,963	6,132	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	. 1
Annual Opring Trip Related per Car	\$3,370	\$3,547	\$3,301	NA	NA	NA
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$1,212	NA	NA	NA
Annual Opring Trip Related per Car Type	\$151,641	\$943,629	\$79,224	. NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$54,540</u>	\$322,392	\$29,088		<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$4,582	\$4,759	\$4,513	NA	NA	NA
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	NA	NA

Amtrak Route: Origin/Destination:	Benjamin Franklin Boston-Philadelphia		Route Number: #	<b>#</b> 193		
Length in Miles:	322					-
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Monogram		,		•	
Equipment:	Self-Cont'd Recirc		,			
Scenario:	Expected					
* All data on per car basis (unless noted						
	20000 Amcafe	21000 Amcoach	20100 · Amclub	NA NA	NA <u>NA</u>	NA NA
Quantity of cars	· 1	1	3	NA	NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA .	NA
Car Waste Data (per car)						
Black Water:			•			
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Capacity Req'd/day (gals)	13,0	20.6	10.0	NA	NA-	NA
Adj. Capacity Req'd w/ Buffer	16.2	25.7	12.6	NA	NA	NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	. NA
Continuous Service Hours Supported As a percentage of 72 hours	40 55%	25 35%	52 72%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	3.0	1.9	3.9	NA	NA	NA
As a percentage of 3 days	101.55%	64.07%	131.28%	NA	NA	NA
Consecutive Trips before pumpout	6.0	3.0	7.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation	<b>_</b> -	<b>*</b> -	**	*-	**	**
Collection System per Car	\$0	\$0	\$0 0.570	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576.	\$576 \$7,076	\$576 \$7.076	NA NA '	NA NA	NA NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA NA	NA NA	NA

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia				•	
Length in Miles:	322				-	
Length in Hours:	6.55					
Expected Trips per Day:	2					•
Manufacturer:	Monogram		•			
Equipment:	Self-Cont'd Recirc	,				
Scenario:	Expected					
* All data on per car basis (unless noted o	•					
	20000	21000 ·	20100	NA	NA NA	NA
•	<u>Amcafe</u>	Amcoach	<u>Amclub</u>	<u>NA</u>		<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	. NA	NA:
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$1,728	NA	NA NA	NA
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$195</u>	<u>NA</u>	NA NA	<u>NA</u>
Total- Opring Non-Trip Related	\$1,923	\$1,923	\$1,923	NA	NA NA	NA
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA NA	NA
- Light Repair	\$0	\$0	\$0		\$0	\$0
Pump out and Disposal	• •	•	*-	•		*-
- Pump out Cost	\$0.13	\$0.21	\$0.10	NA	. NA	NA
- Pump out minutes	0.22	0.34	0.17			NA
- Connect/Disc. minutes	0.0	0.0	0.0			NA
- Waste Disposal	<u>\$0.57</u>	\$0.91	\$0.44	NA NA		NA NA
Subtotal- End of Day/Trip Srvc	\$12.70	\$13.11	\$12.54			NA NA
Train Delay:	· · ·	******	<b>V</b> ,2.5 (		•	
- Pump out volume req'd	0	0	0	NA	. NA	NA
- # of stops req'd	. 0	ō	0	. NA		NA NA
- Pump out minutes	0.0	0.0	0.0	NA NA		NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA NA		NA NA
- Total Time Delay(mins/car)	0	0	<u>9.9</u> 0			NA NA
Average Cost Per Delay	\$0	\$0	.\$0	NA NA		NA NA
Subtotal- Opring Trip Related	\$13	\$13	\$13	NA NA		NA NA
Coloral Opining Imp Helands						
Total # Cars in fleet	45	266	24	NA	NA NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA NA	ŅA
Adjusted Total Car-days	11,498	67,963	6,132	NÂ	NA NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
, , , ,		-	-	_	_	
Annual Oprtng Trip Related per Car	\$3,245	\$3,350	\$3,205	NA	. NA	NA
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$1,923			NA
•		,	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Annual Opring Trip Related per Car Type	\$146,035	\$891,109	\$76,911	NA	NA NA	NA
Annual Non-Trip Related per Car Type	\$86,53 <u>5</u>	\$511,51 <u>8</u>	\$46,152			<u>NA</u>
	,			_		_
Total OPRTNG COST per Car	\$5,168	\$5,273	\$5,128	NA	NA NA	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076		NA NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$232,570 \$318,420	\$1,402,627 \$1,882,216		NA	- 18 1 W Like W. W. William W.	NA NA

Amtrak Route:	Benjamin Franklin		Route Number:	#193	*	
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322	•				
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Microphor					
Equipment:	Gravity					-
Scenario:	Expected					
* All data on per car basis (unless noted	•					
•	20000	21000	20100	· NA	NA	NA
	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	. <u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated Toilets per.car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
		÷	w.			
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	70.2	111.2	54.3	NA	NA	NA
Capacity Req'd/day (gals)	51.3	81.3	39.7	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	64.1	101.6	49.6	NA	NA:	NA
Tank Capacity per Car (gals)	300	300	300	300	300:4	. 300
Continuous Service Hours Supported As a percentage of 72 hours	112 156%	71 98%	145 202%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	8.6	5.4	11.1	NA	NA	NA
As a percentage of 3 days	285.68%	180.25%	369.30%	NA NA	NA	NA
Consecutive Trips before pumpout	17.0	10.0	22.0	NA	NA	NA
CAPITAL COSTS			:			
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	\$10,000	\$10,000	· <u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						_
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	\$576	<u>\$576</u>	<u>NA</u>	<u>NA</u>	NA
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA NA	, NA	NA NA

Origin/Destination: Boston-Philadelphia 322 Length in Miles: 6.55 Length in Hours: Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Expected \* All data on per car basis (unless noted otherwise) 20000 21000 20100 NA NA NA **Amcafe Amcoach Amclub** NA <u>NA</u> NA OPERATING COSTS Non-Trip Related Costs: \$144 Labor cost/major servicing \$144 \$144 NA NA NA Frequency per Year 3 3 <u>3</u> 3 3 3 \$432 Servicing Cost/Year \$432 \$432 NA NA ŅΑ \$600 \$600 \$600 Annual spare parts cost per yr <u>NA</u> <u>NA</u> <u>NA</u> \$1,032 Total- Oprtng Non-Trip Related \$1,032 \$1,032 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.51 \$0.81 \$0.40 NA NA NA - Pump out minutes 0.86 1.36 0.66 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$1.74 \$2.76 <u>\$1.35</u> NΑ NΑ <u>NA</u> Subtotal- End of Day/Trip Srvc \$14.26 \$15.58 \$13.75 NA NA NA Train Delay: - Pump out volume reg'd 0 0 0 NA NA NA - # of stops reg'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Oprtng Trip Related \$14 \$16 \$14 NA NA NA Total # Cars in fleet 45 266 24 NΑ NΑ NA Total Annual Car-days 16,425 97,090 8,760 NΑ NΑ NA Adjusted Total Car-days 11,498 67,963 6,132 NA NA NA Days per Trip (min. of 1) 1 1 1 1 Annual Oprtng Trip Related per Car \$3,643 \$3.980 \$3.512 NA NA NA \$1,032 Annual Non-Trip Related per Car \$1,032 \$1,032 NA NA NA Annual Opring Trip Related per Car Type \$163,924 \$1,058,704 \$84,292 NA NA NA Annual Non-Trip Related per Car Type \$46,440 \$24,768 \$274,512 <u>NA</u> <u>NA</u> NΑ Total OPRTNG COST per Car \$4,675 \$5,012 \$4,544 NA NA NA Total CAPITAL COST per Car \$21,152 \$21,152 \$21,152 NA NA NA Total OPRTNG COST for all cars NA \$210,364 \$1,333,216 \$109,060 NA NA Total CAPITAL COST for all cars \$951,840 \$5,626,432 \$507,648 NA NA

Route Number:

#193

Amtrak Route:

Benjamin Franklin

1

Amtrak Route: Origin/Destination:	Benjamin Franklin Boston-Philadelphia		Route Number:	#193		
Length in Miles:	322					
Length in Hours:	6.55	-				
Expected Trips per Day:	2					
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Expected					
* All data on per car basis (unless noted	•					
	20000	21000	20100	NA	NA	NA
	<u>Amcafe</u>	<u>Amcoach</u>	Amclub	<u>NA</u>	<u>NA</u>	. <u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 . 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
5 1						
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	. 7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	19.2	30.4	14.8	NA	NA	NA
(320)		-				
Capacity Req'd/day (gals)	23.5	37.2	18.1	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	29.3	46.5	22.7	NA	NA:	NA
Tank Capacity per Car (gals)	200	200	200	200	2001	200
Continuous Service Hours Supported As a percentage of 72 hours	164 227%	103 143%	212 294%	. NA NA	NA NA	NA NA
110 a porconnago er / <b>2</b> 110 a 10						
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
						•
Service Days Supported	12.5	7.9	16.2	ŅA	NA	NA
As a percentage of 3 days	416.52%	262.80%	538.43%	NA	NA	NA
Consecutive Trips before pumpout	24.0	15.0	32.0	NA	· NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000 -	\$12,000
Toilet Cost per Car	\$5,800	\$5,800	\$5,800	. <u>NA</u>	Ψ12,000 - <u>NA</u>	. <u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA NA	. NA	NA
Equipment Installation	Ψ17,000	Ψ17,000	Ψ17,000	140	13/3	11/1
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	\$576	\$576	\$57 <u>6</u>	V1,440 NA	NA NA	\$1,440 <u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA NA	NA NA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA NA	NA NA	NA NA
	Ψ10,010	\$15,510	ψ15,51 <b>0</b>	,,,,	11/1	11/7

Antonio Dantos	Doningin Cantilla		Davida Maraham	**100		
Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	. 322					
Length in Hours:	6.55					
Expected Trips per Day:	2.					
Manufacturer:	Evac	•				
Equipment:	Ultimate					
Scenario:	Expected		•			
* All data on per car basis (unless noted	•					
•	20000 <u>Amcafe</u>	21000 Amcoach	20100 <u>Amclub</u>	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:				•		
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	. <u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA NA	NA	NA.
Annual spare parts cost per yr	<u>\$534</u>	\$53 <u>4</u>	<u>\$534</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$966	\$966	\$966	NA	NA NA	NA
, , ,	<del></del>		<del></del>	· <del></del>		
Trip Related Costs:		•				
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	<b>\$</b> 0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal		•				
- Pump out Cost	\$0.23	\$0.37	\$0.18	NA	NA .	NA
- Pump out minutes	0.39	0.62	0.30	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$0.80</u>	<u>\$1.26</u>	<u>\$0.62</u>	<u>NA</u>	<u>ŅA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.03	\$13.64	\$12.80	NA	NA -	NA
Train Delay:	•		·			
- Pump out volume req'd	0	0	. 0	NA	NA	NA
- # of stops req'd	0	0	0	NA	· NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	0.0	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0 .	0	. 0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Opring Trip Related	\$13	\$14	\$13	NA	ŃΑ	NA
· -, ·						
Total # Cars in fleet	. 45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
		¥				
Adjusted Total Car-days	11,498	67,963	6,132	, NA	· NA	NA
Days per Trip (min. of 1)	. 1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,330	\$3,484	\$3,270	NA	NA	NA
Annual Non-Trip Related per Car	\$966	\$966	\$966	NA	NA ·	NA
Timesa Ton Tip Holada por Ca	****	4000	****			
Annual Opring Trip Related per Car Type	\$149,838	. \$926,737	\$78,480	NA	NA ·	NA
Annual Non-Trip Related per Car Type	\$43,470	\$256,95 <u>6</u>	\$23,184	. <u>NA</u>	NA	NA
	<u> </u>	2,220,000	*******			<del></del>
Total OPRTNG COST per Car	\$4,296	\$4,450	\$4,236	NA	NA	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	NA	NA	, NA
	<b>A</b>	<b>A.</b>	<b>A</b>	A 1 A		11.20 - 1.20 PM
Total OPRTNG COST for all cars	\$193,308	\$1,183,693	\$101,664	NA NA	NA NA	NA
Total CAPITAL COST for all cars	\$891,720	\$5,271,056	\$475,584	NA	NA NA	NA

Langth in Houra:   6.55   Expected Trips per Day:   Pallech Equipment:   Pallech   P	Amtrak Route: Origin/Destination: Length in Miles:	Benjamin Franklin Boston-Philadelphia 322		Route Number:	#193		
Part	_						
Equipment:   WTS 8300   Scenario:   Expected   Expected   Expected   Continuous							
*All data on per car basis (unless noted otherwise)  *All data on per car basis (unless noted otherwise)  *Amosach  *An  *An  *An  *An  *An  *An  *An  *A	• • •	Railtech					
*All data on per car basis (unless noted otherwise)    2000	Equipment:	WTS 8300					
2000	Scenario:	Expected					
Amcale	* All data on per car basis (unless noted	otherwise)					
Quantity of cars							NA
Capacity (# people) - seated   53   84   41   NA   NA   NA   NA   NA   NA   NA   N		<del></del>			_		<u>NA</u>
Toilets per car 2 2 2 2 2 NA	•						NA
Car Waste Data (per car)							NA NA
Black Water:	•						NA NA
Black Water:	Average persons/roller on train	20.5	42.0	20.3	NA.	IVA	IVA
Human Waste/day (gals)	Car Waste Data (per car)						
# Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.0	Black Water:						
Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.1	Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.1	# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush Fluids/flush (gals)         0.263         0.		1.10	1.10	1.10	1.10	1.10	1.10
Flush Fluids/day (gals)         107.4         170.2         83.1         NA         NA         NA           Capacity Req'd/day (gals)         71.6         113.5         55.4         NA         NA         NA           Adj. Capacity Req'd w/ Buffer         89.5         141.9         69.2         NA         NA         NA           Tank Capacity Per Car (gals)         100         100         100         NA         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         27         17         35         NA         NA         NA           As a percentage of 72 hours         37%         23%         48%         NA         NA         NA           Probable Service Hours per Day         13.1         <	Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Capacity Req'd/day (gals) 71.6 113.5 55.4 NA NA NA NA Adj. Capacity Req'd w/ Buffer 89.5 141.9 69.2 NA NA NA NA NA NA Capacity Per Car (gals) 100 100 100 100 NA	Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Adj. Capacity Req'd w/ Buffer       89.5       141.9       69.2       NA       NA       NA         Tank Capacity per Car (gals)       100       100       100       NA       NA       NA       NA         Continuous Service Hours Supported As a percentage of 72 hours       27       17       35       NA       NA       NA       NA         Probable Service Hours per Day       13.1	Flush Fluids/day (gals)	107.4	170.2	83.1	NA	NA	NA
Tank Capacity per Car (gals)         100         100         100         NA         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         27         17         35         NA         NA         NA         NA           Probable Service Hours per Day         13.1 <td>Capacity Req'd/day (gals)</td> <td>71.6</td> <td>113.5</td> <td>55.4</td> <td>NA</td> <td>NA</td> <td>NA</td>	Capacity Req'd/day (gals)	71.6	113.5	55.4	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours         27 37%         17 23%         35 48%         NA NA         NA NA         NA NA           Probable Service Hours per Day         13.1         <	Adj. Capacity Req'd w/ Buffer	89.5	141.9	69.2	NA	NA ·	NA
As a percentage of 72 hours 37% 23% 48% NA	Tank Capacity per Car (gals)	100	100	100	NA	NA <sup>-</sup>	NA
Service Day's Supported         2.0         1.3         2.6         NA         NA         NA           As a percentage of 3 days         68.22%         43.05%         88.19%         NA         NA         NA           Consecutive Trips before pumpout         4.0         2.0         5.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$8,000         \$8,000         \$8,000         NA         NA         NA           Toilet Cost per Car         \$6,000         \$6,000         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         \$14,000         NA         NA         NA           Equipment Installation         - Requipment Installation         NA         NA         NA         NA	Continuous Service Hours Supported As a percentage of 72 hours						NA NA
As a percentage of 3 days 68.22% 43.05% 88.19% NA NA NA  Consecutive Trips before pumpout 4.0 2.0 5.0 NA NA NA  CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 NA NA NA NA  Toilet Cost per Car \$6,000 \$6,000 NA NA NA NA  - Total Equip Cost \$14,000 \$14,000 \$14,000 NA NA NA NA  Equipment Installation	Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Consecutive Trips before pumpout         4.0         2.0         5.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$8,000         \$8,000         \$8,000         NA         NA         NA           Toilet Cost per Car         \$6,000         \$6,000         \$6,000         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         \$14,000         NA         NA         NA           Equipment Installation         Consecutive Trips before pumpout	Service Days Supported	2.0	1.3	2.6	NA	NA	, NA
CAPITAL COSTS         Collection System per Car       \$8,000       \$8,000       NA       NA       NA         Toilet Cost per Car       \$6,000       \$6,000       NA       NA       NA       NA         - Total Equip Cost       \$14,000       \$14,000       \$14,000       NA       NA       NA         Equipment Installation	As a percentage of 3 days	68.22%	43.05%	88.19%	NA	NA	NA
Collection System per Car         \$8,000         \$8,000         NA         NA         NA           Toilet Cost per Car         \$6,000         \$6,000         \$6,000         NA         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         \$14,000         NA         NA         NA           Equipment Installation         ***         **** <td>Consecutive Trips before pumpout</td> <td>4.0</td> <td>2.0</td> <td>5.0</td> <td>NA</td> <td>NA</td> <td>NA</td>	Consecutive Trips before pumpout	4.0	2.0	5.0	NA	NA	NA
Toilet Cost per Car         \$6,000         \$6,000         \$6,000         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         \$14,000         NA         NA         NA           Equipment Installation         **Total Equip Cost**         **NA         NA         NA <td< td=""><td>CAPITAL COSTS</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	CAPITAL COSTS						
- Total Equip Cost \$14,000 \$14,000 NA NA NA Equipment Installation	Collection System per Car	\$8,000	\$8,000	\$8,000	NA	· NA	NA
Equipment Installation	Toilet Cost per Car	\$6,000	<u>\$6,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
• •	- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Collection System per Car \$576 \$576 NA NA NA NA	Equipment Installation						
•	Collection System per Car				NA	NA.	NA
· · · · · · · · · · · · · · · · · · ·	•	<u>\$576</u>					<u>NA</u>
				\$1,152			NA
Total Capital Cost \$15,152 \$15,152 \$15,152 NA NA NA	Total Capital Cost	\$15,152	\$15,152	\$15,152	NA	NA NA	NĄ

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day:	Benjamin Franklin Boston-Philadelphia 322 6.55 2		Route Number: #193			
Manufacturer: Equipment:	Railtech WTS 8300					
Scenario:	Expected					
* All data on per car basis (unless noted of	•				• •	
·	20000	21000	20100	NA	NA	NA
OPERATING COSTS Non-Trip Related Costs:	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	• <u>NA</u>	<u>NA</u>	<u>NA</u>
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	) <u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	NA
Annual spare parts cost per yr	\$420	\$420	\$420	<u>NA</u>	NA	<u>NA</u>
Total- Opring Non-Trip Related	\$852	\$852	\$852	NA NA	NA	NA
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.72	\$1.13	\$0.55	. NA	NA ·	NA
- Pump out minutes	1.19	1.89	0.92	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$2.43</u>	<u>\$3.86</u>	<u>\$1.88</u>	. <u>NA</u>	<u>NA</u>	. <u>NA</u>
Subtotal- End of Day/Trip Srvc Train Delay:	\$15.15	\$16.99	\$14.44	NA .	NA	NA
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Opring Trip Related	\$15	\$17	\$14	NA	NA NA	NA
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	11,498	67,963	6,132	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
· ·	·	<del>-</del>	<del>-</del>	<b>∸</b>	<u> </u>	<u> -</u>
Annual Oprtng Trip Related per Car	\$3,871	\$4,342	\$3,689	NA	NA	NA
Annual Non-Trip Related per Car	\$852	\$852	\$852	NA	NA	NA
• •	. –		·	•		. •
Annual Opring Trip Related per Car Type	\$174,196	\$1,154,943	\$88,530	NA	NA	NA
Annual Non-Trip Related per Car Type	\$38,340	\$226,632	\$20,448	<u>NA</u>	NA	<u>NA</u>
Total OPRTNG COST per Car	\$4,723	\$5,194	\$4,541	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA NA	NA NA	NA NA
	ψ10,10 <u>L</u>		7.01.00			
Total OPRTNG COST for all cars	\$212,536	\$1,381,575	\$108,978	NA	NA	NA

\$363,648

\$4,030,432

\$681,840

Total CAPITAL COST for all cars

C2.6 Metroliner, Washington DC-New York

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles:

225

Length in Hours: Expected Trips per Day: 2.78 6

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	·	04000		•••		
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA NA	NA NA	. NA NA
Quantity of cars	1	4	1	NA	NA	NA NA
Capacity (# people) - seated	23	. 60	33	NA NA	NA NA	NA NA
Toilets per car	2	2	2	NA	NA	· NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)	•	•	Ť			
Black Water:	10.00	00.04	44.00			
Human Waste/day (gals) # Flushes/Person-day	10.33 7.00	26.94 7.00	14.82 7.00	NA 7.00	NA 7.00	NA 7.00
Flush efficiency adjustment	7.00 1.10	1.10	1.10	1.10	7.00 1.10	7.00 1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	1.10 7.7
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	11.2	29.1	16.0	0.003 NA	0.063 NA	0.063 NA
rasir i diesely (gas)	11.2	23.1	10.0	INA	INA	INA
Capacity Req'd/day (gals)	14.9	39.0	21.4	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	18.7	48.7	26.8	NA	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	302 420%	116 161%	211 293%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	18.1	6.9	12.6	NA	NA	NA
As a percentage of 3 days	603.87%	231.48%	420.88%	NA	· NA	NA
Consecutive Trips before pumpout	108.0	41.0	75.0	NA	NA .	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	. \$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	NA	NA NA	- NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles: Length in Hours:

225 2.78 6

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:	Expected					
* All data on per car basis (unless noted of	otherwise)					
• • •	20900	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA NA	NA NA	NA <u>NA</u>
OPERATING COSTS	Met-Srvc Dinette	Met-Sive Coach	Mel-Sive Club	NA	INA	INA
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	NA
Annual spare parts cost per yr	<u>\$780</u>	<u>\$780</u>	<u>\$780</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,212	\$1,212	\$1,212	NA	· NA	NA NA
Trip Related Costs:	·					
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$</b> 0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.15	\$0.39	\$0.21	· NA	NA	NA
- Pump out minutes	0.25	0.65	0.36	NA	NA	- NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	\$1,52	\$3.9 <u>7</u>	\$2.19	<u>NA</u>	NA NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.67	\$16.36	\$14.40	NA NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	. NA	NA	NA
- # of stops regid	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Total Time Delay(mins/car)	0	0	0	NA	NA ·	NA
Average Cost Per Delay	. \$0	\$0	\$0	NA NA	NA NA	NA.
Subtotal- Opring Trip Related	\$14	\$16	\$14	NA NA	NA NA	NA NA
Oubloids- Opining Trip Frenated	Ψ1 <del>4</del>	\$10	<b>4</b> 14	NA NA	INA	
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA:	NA
Adjusted Total Car-days	3,322	12,775	3,322	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,493	\$4,181	\$3,679	NA	NA	NA
Annual Non-Trip Related per Car	, \$1,212	\$1,212	\$1,212	NA	NA	NA
Annual Opring Trip Related per Car Type	\$45,413	\$209,032	\$47,828	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$15,756</u>	\$60,600	<u>\$15,756</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$4,705	\$5,393	\$4,891	NA	NA .	NA
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	NA	NA
Total OPRTNG COST for all cars	\$61,169	\$269,632	\$63,584	NA NA	NA	NA
Total CAPITAL COST for all cars	\$364,208	\$1,400,800	\$364,208	NA NA	NA .	NA

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Expected \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA Met-Srvc Coach Met-Srvc Dinette Met-Srvc Club <u>NA</u> <u>NA</u> NA Quantity of cars 1 NA NA NA Capacity (# people) - seated 23 60 33 NΑ NA NA NA Toilets per car 2 2 2 NA NA 16.5 Average persons/toilet on train 11.5 30.0 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 14.82 10.33 26.94 NA NA NA # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0:000 0.000 Flush Fluids/day (gals) 0.0 0.0 0.0 NA NA NA 7.2 18.7 10.3 NA Capacity Req'd/day (gals) NA NA Adj. Capacity Req'd w/ Buffer 12.9 9.0 23.4 NA NA NA Tank Capacity per Car (gals) 27 27 27 NA NΑ NA Continuous Service Hours Supported 72 28 50 NA NA NA As a percentage of 72 hours 100% 38% 70% NA NA NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 4.3 1.7 3.0 NA NA NA As a percentage of 3 days 144.34% 55.33% 100.60% NA NA NA Consecutive Trips before pumpout 25.0 9.0 18.0 NA NA NA

\$0

\$0

\$576

\$576

\$7,076

\$6,500

\$6,500

\$0

\$0

<u>\$576</u>

\$576

\$7,076

\$6,500

\$6,500

\$0

<u>NA</u>

NA

\$0

<u>NA</u>

NA

NA

\$0

<u>NA</u>

NA

\$0

NΑ

ΝΆ

NA

\$0

<u>NA</u>

NA

\$0

<u>NA</u>

NA

NA

\$0

\$0

\$576

\$576

\$7,076

\$6,500

\$6,500

CAPITAL COSTS
Collection System per Car

- Total Equip Cost

Toilet Cost per Car

Equipment Installation Collection System per Car

- Total Installation Cost

Toilet Cost per Car

**Total Capital Cost** 

Metroliner

Route Number:

#200

Washington DC-New York

Length in Miles:

225

Length in Hours: Expected Trips per Day: 2.78 6

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

	20900 let-Srvc Dinette	21900 Met-Srvc Coach	20970 <u>Met-Srvc Club</u>	NA <u>NA</u>	NA <u>NA</u>	N/ <u>N/</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	N/A
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$1,728	NA .	NA	N/A
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$195</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,923	\$1,923	\$1,923	NA	NA	N/
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	. \$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.07	\$0.19	\$0.10	NA	NA	N.A
- Pump out minutes	0.12	0.31	0.17	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$0.95</u>	<u>\$2.47</u>	<u>\$1.36</u>	<u>NA</u>	<u>NA</u> .	<u>NA</u>
Subtotal- End of Day/Trip Srvc Train Delay:	\$13.02	\$14.66	\$13.46	NA	NA	NA
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Opring Trip Related	\$13	\$15	\$13	NA	NA NA	NA
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	. NA	NA-	NA
Adjusted Total Car-days	3,322	12,775	3,322	NA	NA	NA.
Days per Trip (min. of 1)	1	. 1	1	<u>1</u>	1	1
Annual Oprtng Trip Related per Car	\$3,326	\$3,745	\$3,440	NA	NA	NA
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$1,923	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$43,243	\$187,265	\$44,715	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$24,999</u>	<u>\$96,150</u>	<u>\$24,999</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	\$5,249	\$5,668	\$5,963	NA	NA ·	NA
Total OPRTNG COST per Car Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076			

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 2.78 Length in Hours: Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Expected \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA NA Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club <u>NA</u> <u>NA</u> <u>NA</u> Quantity of cars 4 NA NA NA Capacity (# people) - seated 23 60 33 NA NA NA Toilets per car 2 2 NA NA NA Average persons/toilet on train 11.5 30.0 16.5 NA NA NA Car Waste Data (per car) Black Water: 26.94 Human Waste/day (gals) 10.33 14.82 NA NA NA 7.00 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 30.5 79.5 43.7 NA NA NA Capacity Req'd/day (gals) 28.3 74.0 40.7 NA NA NA Adj. Capacity Req'd w/ Buffer 35.4 92.4 50.8 NA NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 203 142 197% 78 NA NA NA As a percentage of 72 hours 282% 108% NA NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 12.2 4.7 8.5 NA NA NA As a percentage of 3 days 406.06% 155.65% 283.01% NA NA NA Consecutive Trips before pumpout 73.0 28.0 50.0 NA NA NA CAPITAL COSTS Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000

\$10,000

\$20,000

\$576

\$576

\$1,152

\$21,152

\$10,000

\$20,000

\$576

\$576

\$1,152

\$21,152

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$576

<u>NA</u>

NA

<u>NA</u>

NA:

NA

\$576

<u>NA</u>

NA

NΑ

NA

NA

\$576

\$10,000

\$20,000

\$576

\$576

\$1,152

\$21,152

Toilet Cost per Car

Equipment Installation
Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

- Total Equip Cost

Metroliner Amtrak Route: Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Expected Scenario: \* All data on per car basis (unless noted otherwise) NA 20900 21900 20970 NA NΔ <u>NA</u> <u>NA</u> Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club NA **OPERATING COSTS** Non-Trip Related Costs: NA \$144 \$144 \$144 NA NA Labor cost/major servicing Frequency per Year <u>3</u> 3 3 <u>3</u> <u>3</u> 3 Servicing Cost/Year \$432 \$432 \$432 NA NA NA Annual spare parts cost per yr \$600 \$600 \$600 <u>NA</u> <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$1,032 \$1,032 NA NA NA \$1,032 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 NA NA - Cleaning \$12 \$12 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.28 \$0.74 \$0.41 NA NA NA - Pump out minutes 0.47 1.23 0.68 NA NA NA - Connect/Disc. minutes 0.0 0.0 NA NA NA 0.0 - Waste Disposal \$7.54 \$4.15 NA. NA NA \$2.89 Subtotal- End of Day/Trip Srvc \$15.17 \$20.28 \$16.56 NA NA NA Train Delay: - Pump out volume req'd 0 0 0 NA NA NA NA NA - # of stops req'd 0 ٥ 0 NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) . 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Opring Trip Related NA \$15 \$20 \$17 NA NA Total # Cars in fleet NA NA NA 13 50 13 Total Annual Car-days 4,745 18,250 4,745 NA NA NA Adjusted Total Car-days 3,322 12,775 3,322 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 1 Annual Oprtng Trip Related per Car \$3,877 \$5,182 \$4,230 NA NA NA Annual Non-Trip Related per Car \$1,032 \$1,032 \$1,032 NA NA NA Annual Oprtng Trip Related per Car Type \$50,404 \$259,109 \$54,989 NA NA NA Annual Non-Trip Related per Car Type \$13,416 \$51,600 \$13,416 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$4,909 \$6,214 \$5,262 NA NA NA Total CAPITAL COST per Car \$21,152 \$21,152 \$21,152 NA NA NA

\$68,405

\$274,976

NA

NA

NA

NA

NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$63,820

\$274,976

\$310,709

\$1,057,600

Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Evac Equipment: Ultimate Scenario: Expected \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA Met-Srvc Coach Met-Srvc Dinette Met-Srvc Club NA NA NA Quantity of cars 1 4 NΑ NΑ NA Capacity (# people) - seated 23 60 33 NA NA NA Toilets per car 2 2 NA NA NA Average persons/toilet on train 11.5 30.0 16.5 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA # Flushes/Person-day 7,00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 Flush Fluids/day (gals) 8.3 21.7 11.9 NA NA NA Capacity Req'd/day (gals) 13.0 33.8 18.6 NA NA NA Adj. Capacity Req'd w/ Buffer 16.2 42.3 23.2 NA NA NA Tank Capacity per Car (gals) 200 200 200 200 200 200 Continuous Service Hours Supported As a percentage of 72 hours 206 287% 296 411% 114 158% NA NA NA NA NA NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 17.8 6.8 12.4 NA NA NA As a percentage of 3 days 592.02% 226.94% 412.62% NA NA NA Consecutive Trips before pumpout 106.0 40.0 74.0 NA NA NA CAPITAL COSTS Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Toilet Cost per Car \$5,800 .\$5,800 \$5,800 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$17,800 \$17,800 \$17,800 NA NA NΑ Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car <u>\$576</u> \$576 <u>\$576</u> <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA **Total Capital Cost** \$19,816 \$19,816 \$19,816 NA

Route Number:

#200

Amtrak Route:

Metroliner

NA

NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York 225

Length in Miles: Length in Hours:

2.78 6

Expected Trips per Day: Manufacturer:

Equipment:

Evac Ultimate

Scenario:

Expected

* All data on per car basis (unless noted of	•	01000	00070	NIA	NIA	
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA <u>NA</u>	NA NA	N/ N/
OPERATING COSTS					*	
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	N/
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	N/
Annual spare parts cost per yr	<u>\$534</u>	<u>\$534</u>	<u>\$534</u>	<u>NA</u>	<u>NA</u>	N/
Total- Opring Non-Trip Related	\$966	\$966	. \$966	NA	NA NA	N/
Trip Related Costs:				•	•	•
Toilet maintenance enroute End of Day/Trip Servicing		•				
- Cleaning	\$12	\$12	\$12	NA	NA	N/
- Light Repair	\$0	\$0	\$0	\$0	<b>\$</b> 0	\$0
Pump out and Disposal			•			
- Pump out Cost	\$0.13	\$0.34	\$0.19	NA	NA	N/
- Pump out minutes	0.22	0.56	0.31	NA	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	N/
- Waste Disposal	\$1.32	\$3.45	\$1.90	NA	NA	NA NA
Subtotal- End of Day/Trip Srvc	\$13.45	\$15.79	\$14.08	NA	NA NA	. NA
Train Delay:	•	*	*****			
- Pump out volume reg'd	0	0	0	NA	NA	. NA
- # of stops req'd	0	0	. 0	NA	NA	N/
- Pump out minutes	0.0	0.0	0.0	NA	NA .	N/
- Connect/Disc. minutes	0.0	. 0.0	0.0	NA	NA	NA NA
- Total Time Delay(mins/car)	0	0	0	NA NA	NA NA	NA NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA NA
Subtotal- Oprtng Trip Related	\$13	\$16	\$14	NA	NA .	N/
Total # Cars in fleet	13	50	13	NA	NA	NÁ
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,322	12,775	3,322	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,437	\$4,034	\$3,598	NA	NA	NA NA
Annual Non-Trip Related per Car	\$966	\$966	\$966	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$44,680	\$201,682	\$46,777	NA NA	. NA	NA
Annual Non-Trip Related per Car Type	\$12,558	<u>\$48,300</u>	<u>\$12,558</u>	<u>NA</u>	<u>NA</u>	NA
Total OPRTNG COST per Car	\$4,403	\$5,000	\$4,564	NA .	NA	'NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	NA	NA	ŅA
Total OPRTNG COST for all cars	\$57,238	\$249,982	\$59,335	NA	NA	N.A
Total CAPITAL COST for all cars	\$257,608		\$257,608		NA.	

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Railtech Equipment: WTS 8300 Scenario: Expected \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NΑ NA Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club <u>NA</u> <u>NA</u> NA Quantity of cars 1 NA 4 NA NA Capacity (# people) - seated 23 60 33 NA NA NA Toilets per car 2 2 2 NA NA NA Average persons/toilet on train 11.5 30.0 16.5 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 46.6 121.6 66.9 NA NA NA Capacity Req'd/day (gals) 39.6 103.2 56.8 NA NA NA Adj. Capacity Req'd w/ Buffer 49.5 129.0 71.0 NA NA NA Tank Capacity per Car (gals) 100 100 100 NA NA NA Continuous Service Hours Supported 49 19 NA NA NA NA 34 47% NA As a percentage of 72 hours 26% NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 2.9 1.1 2.0 NA NA NA As a percentage of 3 days 96.97% 37.17% 67.59% NA NA NA Consecutive Trips before pumpout 17.0 6.0 12.0 NA' NA NA CAPITAL COSTS Collection System per Car \$8,000 \$8,000 \$8,000 NA NA NA Toilet Cost per Car \$6,000 \$6,000 \$6,000 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$14,000 \$14,000 \$14,000 NA NA NA Equipment Installation Collection System per Car \$576 \$576 \$576 NA NΑ NA Toilet Cost per Car <u>\$576</u>

<u>\$576</u>

\$1,152

\$15,152

\$1,152

\$15,152

- Total Installation Cost

**Total Capital Cost** 

۵

\$576

\$1,152

\$15,152

<u>NA</u>

NA

NA

<u>NA</u>

NA

NA

<u>NA</u>

NA

NA

Metroliner

Route Number:

#200

Origin/Destination: Length in Miles:

Washington DC-New York

225

2.78

Length in Hours: Expected Trips per Day:

6

Manufacturer: Equipment:

Railtech WTS 8300

Scenario:

Expected

* All data on per car basis (unless noted	otherwise)					
	20900	21900	20970	NA	NA	NA
OPERATING COSTS	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA NA	NA NA
Annual spare parts cost per yr	, \$420	\$420	\$420	NA	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$852	\$852	\$852	NA	NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing				•		
- Cleaning	· \$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.40	\$1.03	\$0.57	NA	NA	NA
- Pump out minutes	0.66	1.72	0.95	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$4.04</u>	<u>\$10.53</u>	<u>\$5.79</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$16.43	\$23.56	\$18.36	NA	NA	, NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	· NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u> .	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	- NA	NA	NA
Subtotal- Opring Trip Related	\$16	\$24	\$18	NA NA	NA	NA NA
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,322	12,775	3,322	NA	NA	NA
Days per Trip (min. of 1)	1	1	<u> 1</u>	1	1	1
Annual Oprtng Trip Related per Car	\$4,198	\$6,020	\$4,691	NA	NA	NA
Annual Non-Trip Related per Car	\$852	\$852	\$852	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$54,578	\$300,988	\$60,977	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$11,076</u>	<u>\$42,600</u>	<u>\$11,076</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,050	\$6,872	\$5,543	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$65,654 \$196,976	\$343,588 \$757,600	\$72,053 \$196,976	NA NA	NA NA	NA NA

C2.7 Hudson Highlander, Albany-New York

Amtrak Route: Hudson Highlander Route Number: Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Expected \* All data on per car basis (unless noted otherwise) 21000 ΝA NA 21800 NA 20200 NA **Amdinette** <u>NA</u> <u>NA</u> Amcoach <u>Amcoach</u> NA NA NA Quantity of cars 3 1 Capacity (# people) - seated Toilets per car 23 60 NA NA NA 84 2 2 2 NA NA NA Average persons/toilet on train 42.0 11.5 30.0 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 37.72 10.33 26.94 NA NA NA 7.00 7.00 7.00 7.00 7.00 # Flushes/Person-day 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 40.7 11.2 29.1 NA NA NA Capacity Req'd/day (gals) 51.4 14.1 36.7 NA NA NA Adj. Capacity Req'd w/ Buffer 64.2 17.6 45.9 NA NA NA 235 235 · Tank Capacity per Car (gals) 235 235 235 235 NA NA NA NA Continuous Service Hours Supported 88 321 123 171% NA As a percentage of 72 hours 122% 445% NA 15.72 15.72 15.72 15.72 15.72 15.72 Probable Service Hours per Day Service Days Supported 5.6 20.4 7.8 NA NA NA 679.88% 260.62% NA As a percentage of 3 days 186.16% NA NA Consecutive Trips before pumpout 33.0 122.0 46.0 NA NΑ NA CAPITAL COSTS Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$5,000 \$5,000 \$5,000 <u>NA</u> <u>NA</u> <u>NA</u> Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA Equipment Installation \$1,440 \$1,440 Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car <u>\$576</u> <u>\$576</u> <u>\$576</u> NΑ <u>NA</u> <u>NA</u> - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA

\$28,016

\$28,016

NA

NA

NA

\$28,016

**Total Capital Cost** 

Hudson Highlander

Albany-New York City

Origin/Destination: Length in Miles:

142

Length in Hours: Expected Trips per Day: 2.62 6

Manufacturer:

Equipment:

Monogram Modified Vacuum

Scenario:

Expected

•	21000	20200 Amdinate	21800	NA	NA NA	NA
OPERATING COSTS	Amcoach	<u>Amdinette</u>	<u>Amcoach</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA .	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	NA
Annual spare parts cost per yr	\$780	<u>\$780</u>	<u>\$780</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,212	\$1,212	\$1,212	NA	NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$</b> 0	<b>\$</b> 0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.51	\$0.14	\$0.37	NA	NA	NA
- Pump out minutes	0.86	0.23	0.61	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	\$5.24	<u>\$1.44</u>	<b>\$3.74</b>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$17.76	\$13.58	\$16.1-1	NA	NA.	NA
Train Delay:			•			
- Pump out volume reg'd	0	0	0	NA	· NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u> .	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	. 0	0	O	NA	NA	NA
Average Cost Per Delay	\$0	.\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$18	\$14	\$16	NA	NA	NA
Total # Cars in fleet	266	25	. 31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NĀ	NA	NA
Adjusted Total Car-days	67,963	6,388	7,920	NA	NA	. NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$4,537	\$3,469	\$4,116	NA	NA	NA
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$1,212	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$1,206,761	\$86,717	\$127,611	NA	NA.	NA
Annual Non-Trip Related per Car Type	<u>\$322,392</u>	<u>\$30,300</u>	<u>\$37,572</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,749	\$4,681	\$5,328	NA	NA	NA
Total CAPITAL COST per Car	\$28,016 ·	\$28,016	\$28,016	NA	NA	NA
Total OPRTNG COST for all cars	\$1,529,153	\$117,017	\$165,183	ŃA	NA	NA
Total CAPITAL COST for all cars	\$7,452,256	\$700,400	\$868,496	NA	NA	NA

Route Number:

Amtrak Route:	Hudson Highlande	r	Route Number: #	242		
Origin/Destination:	Albany-New York (					
Length in Miles:	142	•				
Length in Hours:	2.62					
Expected Trips per Day:	6					•
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc			•		
Scenario:	Expected					
* All data on per car basis (unless noted	otherwise)					
•	21000 Amcoach	20200 Amdinette	21800 <u>Amcoach</u>	NA NA	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated	84	23	60	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0 -	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	, NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1,10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Capacity Req'd/day (gals)	24.7	6.8	17.6	NA	ŇA	NA
Adj. Capacity Req'd w/ Buffer	30.9	8.5	22.1	NA	NA	, NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	21 29%	77 106%	29 41%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	1.3	4.9	1.9	NA	NA	NA
As a percentage of 3 days	44.50%	162.51%	62.29%	NA	NA	NA
Consecutive Trips before pumpout	8.0	29.0	11.0	NA	NA	NA.
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation	÷ =	÷ =	**		<b>.</b>	
Collection System per Car	\$0	\$0	\$0 \$570	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	NA	NA
- Total Installation Cost	\$576	\$576	\$576	NA NA	NA NA	NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA NA	NA	NA NA

Amtrak Route: Hudson Highlander Route Number: Origin/Destination: Albany-New York City

Length in Miles: 142 Length in Hours: 2.62

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario: All data on per car basis (unless noted ott	Expected					
All data on per car basis (diffess fioled of	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA NA
OPERATING COSTS	Minodon	<u> Amairona</u>	Aniosaon	141	144	137
Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$1,728	NA	NA	NA
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$195</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,923	\$1,923	\$1,923	NA NA	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	. \$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.25	\$0.07	\$0.18	NA	NA .	NA
- Pump out minutes	0.41	0.11	0.29	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	\$3.26	\$0.8 <u>9</u>	\$2.33	NA	NA	NA
Subtotal- End of Day/Trip Srvc	\$15.51	\$12.96	\$14.51	NA	NA NA	NA
Train Delay:						
- Pump out volume reg'd	0	0	0	NA	NA	NA
- # of stops req'd	. 0	0	0	NA	NA	NA
- Pump out minutes	0.0	. 0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Total Time Delay(mins/car)		0	0	NA	NA	NA NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Opring Trip Related	\$16	\$13	\$15	NA	NA	NA
Total # Cars in fleet	266	25	. 31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	67,963	6,388	7,920	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	<u>1</u>	1	1
Annual Oprtng Trip Related per Car	\$3,962	\$3,311	\$3,706	NA	· NA	NA
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$1,923	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$1,053,968	. \$82,785	* \$114,892	NA	NA NA	NA
Annual Non-Trip Related per Car Type	<u>\$511,518</u>	<u>\$48,075</u>	<u>\$59,613</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,885	\$5,234	\$5,629	NA	NA	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	NA	NA	NA
Total OPRTNG COST for all cars	\$1,565,486	\$130,860	\$174,505	NA NA	NA	NA
Total CAPITAL COST for all cars	\$1,882,216	\$176,900	\$219,356	NA	NA NA	NA

Amtrak Route:	Hudson Highlander	•	Route Number:	#242		
Origin/Destination:	Albany-New York (					
Length in Miles:	142	,	¥			
Length in Hours:	2.62				ŧ	
Expected Trips per Day:	. 6					
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Expected					
	•					
* All data on per car basis (unless noted	21000	20200	21800	NA	NA	NA
2	Amcoach	Amdinette	Amcoach	NA NA	NA NA	NA NA
Quantity of cars	3		1	· NA	NA	NA NA
Capacity (# people) - seated	84	. 23	60	NA NA	. NA	NA.
Toilets per car	2	2	2	NA NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
						•
	•					
Car Waste Data (per car)						
Black Water:						
	37.72	10.33	26,94	NA	NA	NA
Human Waste/day (gals)	7.00	7.00	7.00	7.00	7.00	7.00
# Flushes/Person-day			1,10	1.10	1.10	1.10
Flush efficiency adjustment	1.10 7.7	1.10 7.7	7.7	7.7	7.7	7.7
Adj. # Flushes/Person-day	7.7 0.172	7.7 0.172	7.7 0.172	7.7 0.172	7.7 0.172	7.7 0,172
Flush Fluids/flush (gals)				0.172 NA	0.172 NA	0.172 NA
Flush Fluids/day (gals)	111.2	30.5	79.5	NA .	INA	IVA
Capacity Req'd/day (gals)	97.6	26.7	69.7	NA	NA	NA
Adj. Capacity Reg'd w/ Buffer	122.0	33.4	87.1	NA	NA	~ NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported	59	. 216	83	NA	NA	NA
As a percentage of 72 hours	82%	299%	115%	NA NA	NA	NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Probable dervice Flours per bay	10.72	. 15.72	15.12	10.72	10.72	10.72
Service Days Supported	3.8	13.7	5.3	NA	NA	NA
As a percentage of 3 days	125.18%	457.16%	175.25%	, NA	NA	NA
		*				
Consecutive Trips before pumpout	22.0	82.0	31.0	NA	NA	NA
CAPITAL COSTS						
	£40.000	¢10.000	¢10.000	\$10,000	\$10,000	\$10,000
Collection System per Car	\$10,000 \$10,000	\$10,000 \$10,000	\$10,000 \$10,000			· ·
Toilet Cost per Car	\$10,000 \$20,000	\$10,000	\$10,000	<u>NA</u> NA	· . <u>NA</u> NA	<u>NA</u> NA
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	INA
Equipment Installation	<b>6.7</b> 0	<b>e</b> c70	<b>PE70</b>	<b>¢</b> C70	\$576	\$576
Collection System per Car	\$576	\$576	\$576	\$576	•	
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	NA NA
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA

\$21,152

\$21,152

\$21,152

NA

NA

NA

Total Capital Cost

Origin/Destination: Albany-New York City Length in Miles: 142 2,62 Length in Hours: Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Expected \* All data on per car basis (unless noted otherwise) 21000 20200 21800 <u>Amcoach</u> <u>Amdinette</u> **Amcoach** <u>NA</u> <u>NA</u> <u>NA</u> **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$144 NA NA NA Frequency per Year <u>3</u> <u>3</u> <u>3</u> <u>3</u> <u>3</u> <u>3</u> Servicing Cost/Year \$432 \$432 \$432 NA NA. NA Annual spare parts cost per yr \$600 \$600 <u>NA</u> <u>NA</u> \$600 <u>NA</u> Total- Opring Non-Trip Related \$1,032 \$1,032 \$1,032 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 NA NA - Cleaning \$12 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.98 \$0.27 \$0.70 NA NA NA - Pump out minutes 1,63 0.45 1.16 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$9.95 \$2.73 \$7.11 <u>NA</u> <u>NA</u> NΑ Subtotal- End of Day/Trip Srvc \$22.93 \$14.99 \$19.81 NA NA NA Train Delay: - Pump out volume req'd 0 NA Q 0 NA NA - # of stops req'd 0 0 0 NA NA NA - Pump out minutes NA NA 0.0 0.0 0.0 NΑ - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Opring Trip Related \$20 \$23 \$15 NA NA NA 266 31 NA Total # Cars in fleet 25 NA NA Total Annual Car-days 97,090 9,125 11,315 NA NA NA Adjusted Total Car-days 67,963 6,388 7,920 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$5,858 \$3,831 \$5,060 NA NA NA Annual Non-Trip Related per Car \$1,032 \$1,032 \$1,032 NA NA. NΑ Annual Opring Trip Related per Car Type \$1,558,264 \$95,763 \$156,872 NA NA NA Annual Non-Trip Related per Car Type \$274,512 \$25,800 \$31,992 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$6,890 \$6,092 NA NA NΑ \$4,863 Total CAPITAL COST per Car NA \$21,152 \$21,152 NA \$21,152 NA Total OPRTNG COST for all cars. \$1,832,776 \$121,563 \$188,864 NA NA NA Total CAPITAL COST for all cars \$5,626,432 \$655,712 \$528,800 NA NA NA

Route Number:

#242

Amtrak Route:

Hudson Highlander

Hudson Highlander

Albany-New York City

Origin/Destination: Length in Miles:

Albany-New York City 142

Length in Hours:

2.62 6

Expected Trips per Day: Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	otherwise)					
	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated	84	23	60	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	. 7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	30.4	8.3	21.7	NA	NA	NA
Capacity Req'd/day (gals)	44.6	12.2	31.9	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	55.8	15.3	39.8	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	<sup>~</sup> 200
Continuous Service Hours Supported As a percentage of 72 hours	86 120%	314 437%	120 167%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	5.5	20.0	7.7	NA	NA	NA
As a percentage of 3 days	182.50%	666.53%	255.50%	NA	NA	NA
Consecutive Trips before pumpout	32.0	119.0	45.0	ŇA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<b>\$</b> 5,800	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	• <u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA	NA

#242

Route Number:

Hudson Highlander

Origin/Destination: Length in Miles:

Albany-New York City

Length in Hours:

142 2.62

Expected Trips per Day:

6

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Expected

* All data on per car basis (unless noted oth	nerwise)		•			
	21000 <u>Amcoach</u>	20200 Amdinette	21800 <u>Amcoach</u>	NA <u>NA</u>	NA <u>NA</u>	NA NA
OPERATING COSTS						
Non-Trip Related Costs: Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
	•	•	•			
Frequency per Year Servicing Cost/Year	<u>3</u> \$432	<u>3</u> \$432	<u>3</u> \$432	<u>3</u> NA	<u>3</u> NA	<u>3</u> NA
	\$534	\$534	\$534	NA NA	NA NA	NA NA
Annual spare parts cost per yr Total- Oprtng Non-Trip Related	\$966	\$966	\$966	NA NA	NA	NA NA
Total- Opting Non-mp Helated	\$900	\$900	\$900	- NA	·	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.45	\$0.12	\$0.32	NA	NA	· NA
- Pump out minutes	0.74	0.20	0.53	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	, NA	NA	NA
- Waste Disposal	<u>\$4.55</u>	\$1.25	<u>\$3.25</u>	<u>NA</u> -	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$17.00	\$13.37	\$15.57	NA	NA	· NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
-# of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA ·	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$17	\$13	\$16	NA NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	67,963	6,388	7,920	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$4,343	\$3,416	\$3,978	NA	, NA	NA
Annual Non-Trip Related per Car	\$966	\$966	\$966	. NA	NA	NA
Annual Opring Trip Related per Car Type	\$1,155,164	\$85,389	\$123,316	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$256,956</u>	<u>\$24,150</u>	<u>\$29,946</u>	. <u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,309	\$4,382	\$4,944	NA	NA	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	NA .	NA	NA
Total OPRTNG COST for all cars	\$1,412,120	\$109,539	\$153,262	NA NA	NA	NA
Total CAPITAL COST for all cars	\$5,271,056	_ \$495,400	\$614,296	NA	NA	NA

Route Number:

Hudson Highlander

Amtrak Route: Origin/Destination: Length in Miles:

Albany-New York City 142

Length in Hours:

2.62 6

Expected Trips per Day:

Manufacturer: Equipment:

Railtech

WTS 8300

Scenario:

Expected

* All data on per car basis (unless noted	otherwise)					
•	21000	20200	21800	NA	NA	NA NA
	<u>Amcoach</u>	<u>Amdinette</u>	<u>Amcoach</u>	, <u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	.3	1	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	84 2	23 2	60 2	NA NA	NA NA	NA NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:	•					
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	170.2	46.6	121.6	NA	NA	NA
Capacity Req'd/day (gals)	136.2	37.3	97.3	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	170.2	46.6	121.6	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	: NA
Continuous Service Hours Supported As a percentage of 72 hours	14 20%	51 72%	20 27%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15,72	15.72	, 15.72	15.72	15.72	15.72
Service Days Supported	0.9	3.3	1.3	. NA	NA	NA
As a percentage of 3 days	29.89%	109.18%	41.85%	NA	NA	NA
Consecutive Trips before pumpout	5.0	19.0	7.0	NA	NA	NA
CAPITAL COSTS				•		
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	* <u>\$6,000</u>	. <u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation				,		
Collection System per Car	\$576	\$576	\$576	NA	NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	· <u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA NA	NA	NA NA

Route Number:

Hudson Highlander

Origin/Destination: Length in Miles:

Albany-New York City

142 2.62

6

Length in Hours: Expected Trips per Day:

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:				<del></del>	<del>-</del>	<del></del> .
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	NA
Annual spare parts cost per yr	<u>\$420</u>	<u>\$420</u>	<u>\$420</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$852	\$852	\$852	NA	NA NA	NA NA
Trip Related Costs:			£.			
Toilet maintenance enroute End of Day/Trip Servicing			•			·
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.36	\$0.37	\$0.97	NA	NA	NA
- Pump out minutes	2.27	0.62	1.62	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$13.89</u>	<u>\$3.80</u>	<u>\$9.92</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$27.25	\$16.18	\$22.90	NA	NA	NA
Train Delay:	_	_	_			
- Pump out volume req'd	0	0	0	NA	NA NA	NA
- # of stops req'd	0	. 0	0	NA .	NA	NA
- Pump out minutes	0.0	0.0	0.0	` NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u> 0	<u>0.0</u> 0	0.0	<u>NA</u>	<u>NA</u>	<u>NA</u> NA
- Total Time Delay(mins/car)	-	=	•	NA NA	NA NA	
Average Cost Per Delay	\$0 \$27	\$0 \$16	· \$0 \$23	NA NA	. NA	NA NA
Subtotal- Oprtng Trip Related	\$21	\$10	Ψ23	INA .	. INA	NA NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	67,963	6,388	7,920	· NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$6,963	\$4,133	\$5,850	NA.	NA	NA
Annual Non-Trip Related per Car	\$852	\$852	\$852	NA	. NA	NA
Annual Oprtng Trip Related per Car Type	\$1,852,229	\$103,328	\$181,343	NA	NA	· NA
Annual Non-Trip Related per Car Type	<u>\$226,632</u>	<u>\$21,300</u>	<u>\$26,412</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,815	\$4,985	\$6,702	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	- \$15,152	NA	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$2,078,861 \$4,030,432	\$124,628 \$378,800	\$207,755 \$469,712	NA NA	NA NA	NA NA

Route Number:

C2.8 Electric City Express, Schenectady-New York

Amtrak Route: Origin/Destination: Electric City Express

Route Number:

#250

Length in Miles:

Length in Hours:

Schenectady-New York City 160

3.03

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Expected

	454.0.11					
	151-Odd <u>Turbo Power Club</u>	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)				6		•
Black Water:			•		•	
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	13.1	34.9	25.2	19.4	NA	NA
Capacity Req'd/day (gals)	12.7	34.0	24.5	18.9	NA	· NA
Adj. Capacity Req'd w/ Buffer	15.9	42.5	30.7	23.6	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	354 <sup>.</sup> 492%	133 185%	184 255%	239 % 332%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	29.2	11.0	15.2	. 19.7	NA	NA
As a percentage of 3 days	974.31%	365.37%	505.89%	657.66%	NA	NA
Consecutive Trips before pumpout	116.0	43.0	60.0	78.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$2,500</u>	\$5,000	\$2,500	<u>\$2,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$23,500	\$26,000	\$23,500	\$23,500	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$2,016	\$1,728	\$1,728	NA	NA
Total Capital Cost	\$25,228	\$28,016	\$25,228	\$25,228	NA	NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles: Length in Hours:

160 3.03

Expected Trips per Day:

3.03

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of						
	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA NA
OPERATING COSTS	Tubo Fower Club	Turbo Coacii	Tuibo Cale	Tulbo Fower Coac	170	1717
Non-Trip Related Costs:		•				
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	· NA
Frequency per Year	<u>3</u>	<u>3</u>	3	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$216	\$432	\$216	\$216	NA NA	NA.
Annual spare parts cost per yr	<u>\$705</u>	<u>\$780</u>	<u>\$705</u>	<u>\$705</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$921	\$1,212	\$921	\$921	NA	NA
Trip Related Costs:			•			
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	<b>\$0</b>	\$0	\$0	\$0	\$0	· \$0
Pump out and Disposal						
- Pump out Cost	\$0.13	\$0.34	\$0.25	\$0.19	NA	NA
- Pump out minutes	0.21	0.57	0.41	0.31	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	. NA
- Waste Disposal	<u>\$0.87</u>	<u>\$2.31</u>	<u>\$1.67</u>	<u>\$1.28</u>	<u>NA</u> .	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.99	\$14.65	\$7.91	\$7.47	·NA	NA
Train Delay:						
- Pump out volume req'd	0	. 0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0,0.	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	. \$0	\$0	\$0	· \$0	NA	NA
Subtotal- Oprtng Trip Related	<u>*7</u>	\$15	\$8	\$7	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA 	NA
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	NA
Days per Trip (min. of 1)	1	. 1	1	1	<u>1</u>	1
Annual Opring Trip Related per Car	\$1,787	\$3,743	\$2,022	\$1,909	NA	NA
Annual Non-Trip Related per Car	\$921	` \$1,212	\$921	\$921	NA	NA
Annual Oprtng Trip Related per Car Type	\$10,721	\$78,600	\$6,066	\$26,727	NA	NA
Annual Non-Trip Related per Car Type	<u>\$5,526</u>	<u>\$25,452</u>	\$2,763	<u>\$12.894</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,708	\$4,955	\$2,943	\$2,830	NA	NA
Total CAPITAL COST per Car	\$25,228	\$28,016	\$25,228	\$25,228	NA	NA
Total OPRTNG COST for all cars	\$16,247	\$104,052	\$8,829	\$39,621	NA NA	NA
Total CAPITAL COST for all cars	\$151,368	\$588,336	\$75,684	\$353,192	NA NA	NA

Route Number:

Amtrak Route: Origin/Destination:

Length in Miles:

Length in Hours:

Electric City Express

Schenectady-New York City

160

4

3.03

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted of	151-Odd	170	170	150-Even	NA	NA
	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	<u>NA</u>	<u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated	27	72	52	40	NA	NA
Toilets per car	1	2	1	1	NA	NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	6.1	16.3	11.8	9.1	NA	NA
Adj. Capacity Req'd w/ Buffer	7.7	20.4	14.7	11.3	NA	NA
Tank Capacity per Car (gals)	13.5	27	13.5	13.5	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	42 59%	32 44%	22 31%	29 40%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	3.5	2.6	1.8	2.4	NA	NA
As a percentage of 3 days	116.44%	87.33%	60.46%	6 78.60%	NA	NA
Consecutive Trips before pumpout	13.0	10.0	7.0	9.0	NA	NA
CAPITAL COSTS						
Collection System per Car	. \$0	<b>\$0</b>	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$3,250</u>	<u>\$6,500</u>	<u>\$3,250</u>	<u>\$3,250</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$3,250	\$6,500	\$3,250	\$3,250	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	· <u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$288	\$576	\$288	\$288	. NA	NA
Total Capital Cost	\$3,538	\$7,076	\$3,538	\$3,538	NA	NA NA

Route Number:

Amtrak Route: Origin/Destination: Electric City Express

Schenectady-New York City

Route Number:

#250

160

Length in Miles: Length in Hours:

3.03 4

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Expected

SPERATING COSTS   Non-Trip Related Costs:   Labor cost/major servicing   \$288   \$576   \$288   \$288   \$3		151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA NA	NA NA
Labor cost/major servicing   \$288   \$576   \$288   \$328   \$3	OPERATING COSTS		7.0.00	Laips said	14100 / 41101 4444	141	<u> </u>
Frequency per Year   3   3   3   3   3   3   3   4   5   5   5   5   5   5   5   5   5	•						
Servicing Cost/Vear	, ,	•			•		NA
Annual spare parts cost per yr Total- Opring Non-Trip Related \$962 \$1,923 \$192 \$982 \$1,923 \$982 \$982 \$1,923 \$982 \$1,923 \$982 \$986 \$1,923 \$1,924 \$1,926 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,925 \$1,926 \$1,925 \$1,925 \$1,925 \$1,926 \$1,92		<del>-</del>	_	<del>-</del>	_		<u>3</u>
Total-Opting Non-Trip Related   \$962   \$1,923   \$962   \$962   \$NA	<del>-</del>	•		-	•		NA
Trip Related Costs: Tollet maintenance enroute End of Day/Trip Servicing - Cleaning \$6\$ \$12 \$6 \$6 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 - Pump out and Disposal - Pump out Cost \$0.06 \$0.16 \$0.12 \$0.09 NA - Pump out minutes 0.10 0.27 0.20 0.15 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 NA - Waste Disposal \$0.54 \$1.44 \$1.04 \$0.80 NA - Subtotal- End of Day/Trip Srvc \$6.60 \$13.60 \$7.16 \$6.89 NA - # of stops req'd 0 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - # of stops req'd 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - Pump out pulmer req'd 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 NA - Pump out pulmer req'd 0 0 0 0 0 NA - Pump out pulmer req'd 0 0 0 0 0 NA - Pump out pulmer req'd 0 0 0 0 0 NA - Pump out pulmer req'd 0 0 0 0 NA - For a stops req'd 0 0 0 0 0 NA - Pump out pulmer req'd 0 0 0 0 0 NA - Pump out pulmer req'd 0 0 0 0 0 NA - Pump out pulmer req'd 0 0 0 0 NA - Pump out pulmer req'd 0 0 NA - Pump out pulmer req'd 0 NA - For a stops req'd 0 NA - Pump out minutes 0 NA - Pump out pulmer req'd 0 NA - Pump out minutes 0 NA - Pump out req'd							<u>NA</u>
Total maintenance eurouse   End of Day/Trip Servicing   \$6	Total- Opring Non-Trip Helated	\$962	\$1,923	\$962	\$962	NA NA	NA NA
End of Day/Trip Servicing   \$6	Trip Related Costs:			•		4	•
- Cleaning \$6 \$12 \$6 \$6 \$6 NA . Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0							
- Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0							
Pump out and Disposal - Pump out Cost \$0.06 \$0.16 \$0.12 \$0.09 NA - Pump out minutes 0.10 0.27 0.20 0.15 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA - Waste Disposal \$0.54 \$1.44 \$1.04 \$0.80 NA - Waste Disposal \$0.54 \$1.45 \$1.04 \$0.80 NA - Waste Disposal \$0.54 \$1.00 \$0.0 \$0.0 NA - Waste Disposal \$0.54 \$0.0 \$0.0 \$0.0 \$0.0 NA - # of stops req'd \$0.0 \$0.0 \$0.0 \$0.0 NA - # of stops req'd \$0.0 \$0.0 \$0.0 \$0.0 NA - Pump out minutes \$0.0 \$0.0 \$0.0 \$0.0 NA - Connect/Disc. minutes \$0.0 \$0.0 \$0.0 \$0.0 NA - Connect/Disc. minutes \$0.0 \$0.0 \$0.0 \$0.0 NA - Connect/Disc. minutes \$0.0 \$0.0 \$0.0 \$0.0 NA - Total Time Delay(minis/car) \$0.0 \$0.0 \$0.0 NA - Waste Disposal \$0.0 \$0.0 \$0.0 NA - Total # Car-days \$0.0 \$0.0 NA - Total # Car-days \$0.0 \$0.0 NA - Total Manual Non-Tri	~	· · · · · · · · · · · · · · · · · · ·					NA
- Pump out Rost \$0.06 \$0.16 \$0.12 \$0.09 NA - Pump out minutes 0.10 0.27 0.20 0.15 NA - Pump out minutes 0.0 0.0 0.0 0.0 0.0 - Waste Disposal \$0.54 \$1.44 \$1.04 \$0.80 NA - Waste Disposal \$0.54 \$1.00 \$0.00 \$0.00 NA - Waste Disposal \$0.00 \$0.00 \$0.00 NA - # of stops req'd \$0.00 \$0.00 \$0.00 NA - Pump out volume req'd \$0.00 \$0.00 \$0.00 NA - Pump out minutes \$0.00 NA - Pump out minutes \$0.00 NA - Pump out minutes	• •	, \$0	\$0	\$0	\$0	\$0	\$0
- Pump out minutes	•						
- Connect/Disc. minutes			\$0.16	\$0.12	\$0.09	NA	NA
- Waste Disposal \$0.54 \$1.44 \$1.04 \$0.80 NA Subtotal- End of Day/Trip Srvc \$6.60 \$13.60 \$7.16 \$6.89 NA Train Delay:  - Pump out volume req'd 0 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0 0 0 0 NA - Total Time Delay(mins/car) 0 0 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA Subtotal- Opring Trip Related \$7 \$14 \$7 \$7 NA  Total Annual Car-days 1,533 5,366 767 3,577 NA Days per Trip (min. of 1) 1 1 1 1 1 1  Annual Opring Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA Annual Opring Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Opring Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA Annual Opring Trip Related per Car Type \$5,769 \$40,383 \$2,895 \$13,461 NA  Total Opring CoST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	•						NA
Subtotal- End of Day/Trip Srvc         \$6.60         \$13.60         \$7.16         \$6.89         NA           Train Delay:         - Pump out volume req'd         0         0         0         0         NA           - # of stops req'd         0         0         0         0         0         NA           - # of stops req'd         0.0         0.0         0.0         0.0         NA           - Pump out minutes         0.0         0.0         0.0         0.0         NA           - Connect/Disc. minutes         0.0         0.0         0.0         0.0         NA           - Total Trime Delay(mins/car)         0         0         0         0         NA           Average Cost Per Delay         \$0         \$0         \$0         \$0         NA           Subtotal- Oprting Trip Related         \$7         \$14         \$7         \$7         NA           Total # Cars in fleet         6         21         3         14         NA           Total Annual Car-days         1,533         5,366         767         3,577         NA           Days per Trip (min. of 1)         1         1         1         1         1         1           Annu		0.0		0.0	0.0	NA	NA
Train Delay: - Pump out volume req'd 0 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0 0 0 0 0 NA - Connect/Disc. minutes 0.0 0 0 0 0 0 NA - Total Time Delay(mins/car) 0 0 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA Subtotal- Opting Trip Related \$7 \$14 \$7 \$7 NA  Total # Cars in fleet 6 21 3 14 NA  Total Annual Car-days 1,533 5,366 767 3,577 NA Days per Trip (min. of 1) 1 1 1 1 1 1 1  Annual Opting Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA Annual Non-Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Opting Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA Annual Opting Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OpRTNG COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	· · · · · · · · · · · · · · · · · · ·				<u>\$0.80</u>	<u>NA</u>	<u>NA</u>
- Pump out volume req'd 0 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0 0 0 0 NA - Connect/Disc. minutes 0.0 0 0 0 0 NA - Total Time Delay(mins/car) 0 0 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA Subtotal- Opring Trip Related \$7 \$14 \$7 \$7 NA  Total # Cars in fleet 6 21 3 14 NA  Total Annual Car-days 2,190 7,665 1,095 5,110 NA - Adjusted Total Car-days 1,533 5,366 767 3,577 NA  Adjusted Total Car-days 1,533 5,366 767 3,577 NA Days per Trip (min: of 1) 1 1 1 1 1 1  Annual Opring Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA Annual Non-Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Opring Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRING COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA		\$6.60	\$13.60	\$7.16	\$6.89	NA	NA
- # of stops req'd 0 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0 0 0 0 0 NA - Connect/Disc. minutes 0.0 0 0 0 0 NA - Total Time Delay(mins/car) 0 0 0 0 0 NA - Average Cost Per Delay \$0 \$0 \$0 \$0 NA - Subtotal- Opring Trip Related \$7 \$14 \$7 \$7 NA  Total # Cars in fleet 6 21 3 14 NA  Total Annual Car-days 2,190 7,665 1,095 5,110 NA - Adjusted Total Car-days 1,533 5,366 767 3,577 NA - Days per Trip (min. of 1) 1 1 1 1 1 - Annual Opring Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA - Annual Opring Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Opring Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA - Annual Opring Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA - Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA - Total OPRING COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	•						
- Pump out minutes 0.0 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA - Total Time Delay(mins/car) 0 0 0 0 0 0 NA - Total Time Delay(mins/car) 0 0 0 0 0 NA - NA - Average Cost Per Delay \$0 \$0 \$0 \$0 NA - NA	•	•	=				NA
- Connect/Disc. minutes 0.0 0.0 0.0 0.0 MA - Total Time Delay(mins/car) 0 0 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 NA Subtotal- Opring Trip Related \$7 \$14 \$7 \$7 NA  Total # Cars in fleet 6 21 3 14 NA  Total Annual Car-days 2,190 7,665 1,095 5,110 NA  Adjusted Total Car-days 1,533 5,366 767 3,577 NA  Days per Trip (min. of 1) 1 1 1 1 1 1  Annual Opring Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA  Annual Non-Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA  Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRING COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	· ·	_	_	-	=	NA	NA
- Total Time Delay(mins/car) 0 0 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA Subtotal-Oprtng Trip Related \$7 \$14 \$7 \$7 NA  Total # Cars in fleet 6 21 3 14 NA  Total Annual Car-days 2,190 7,665 1,095 5,110 NA  Adjusted Total Car-days 1,533 5,366 767 3,577 NA  Days per Trip (min: of 1) 1 1 1 1 1 1  Annual Oprtng Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA  Annual Oprtng Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Oprtng Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA  Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRTNG COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	•					NA	NA
Average Cost Per Delay Subtotal-Opring Trip Related \$7 \$14 \$7 \$7 \$7  NA  Total # Cars in fleet 6 21 3 14 NA  Total Annual Car-days 2,190 7,665 1,095 5,110 NA  Adjusted Total Car-days 1,533 5,366 767 3,577 NA  Days per Trip (min: of 1) 1 1 1 1 1  Annual Opring Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA  Annual Opring Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Opring Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA  Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRING COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	· · · · · · · · · · · · · · · · · · ·	, —				<u>NA</u>	<u>NA</u>
Subtotal- Opring Trip Related         \$7         \$14         \$7         \$7         NA           Total # Cars in fleet         6         21         3         14         NA           Total Annual Car-days         2,190         7,665         1,095         5,110         NA           Adjusted Total Car-days         1,533         5,366         767         3,577         NA           Days per Trip (min. of 1)         1	• • • • • • • • • • • • • • • • • • • •	=		_			NA
Total # Cars in fleet 6 21 3 14 NA  Total Annual Car-days 2,190 7,665 1,095 5,110 NA  Adjusted Total Car-days 1,533 5,366 767 3,577 NA  Days per Trip (min. of 1) 1 1 1 1 1 1  Annual Oprtng Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA  Annual Non-Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Oprtng Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA  Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRTNG COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	•	•	•				NA
Total Annual Car-days 2,190 7,665 1,095 5,110 NA  Adjusted Total Car-days 1,533 5,366 767 3,577 NA  Days per Trip (min. of 1) 1 1 1 1 1 1  Annual Oprtng Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA  Annual Non-Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Oprtng Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA  Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRTNG COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	Subtotal- Oprtng Trip Related	\$7	\$14	\$7	\$7	NA NA	NA
Adjusted Total Car-days 1,533 5,366 767 3,577 NA Days per Trip (min. of 1) 1 1 1 1 1 1  Annual Oprtng Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA Annual Non-Trip Related per Car \$962 \$1,923 \$962 \$962 NA  Annual Oprtng Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRTNG COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	Total # Cars in fleet	6	21	3	14	NA	NA
Days per Trip (min. of 1)       1<	Total Annual Car-days	2,190	7,665	1,095	5,110	NA·	NA
Annual Oprtng Trip Related per Car \$1,686 \$3,475 \$1,828 \$1,760 NA Annual Non-Trip Related per Car \$962 \$1,923 \$962 NA  Annual Oprtng Trip Related per Car Type \$10,118 \$72,970 \$5,485 \$24,641 NA Annual Non-Trip Related per Car Type \$5,769 \$40,383 \$2,885 \$13,461 NA  Total OPRTNG COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	Adjusted Total Car-days	1,533	5,366	767	3,577	NA	NA
Annual Non-Trip Related per Car       \$962       \$1,923       \$962       \$962       NA         Annual Opring Trip Related per Car Type       \$10,118       \$72,970       \$5,485       \$24,641       NA         Annual Non-Trip Related per Car Type       \$5,769       \$40,383       \$2,885       \$13,461       NA         Total OPRTNG COST per Car       \$2,648       \$5,398       \$2,790       \$2,722       NA	Days per Trip (min. of 1)	. 1	1	1	1	1	1
Annual Opring Trip Related per Car Type       \$10,118       \$72,970       \$5,485       \$24,641       NA         Annual Non-Trip Related per Car Type       \$5,769       \$40,383       \$2,885       \$13,461       NA         Total OPRTNG COST per Car       \$2,648       \$5,398       \$2,790       \$2,722       NA	Annual Oprtng Trip Related per Car	\$1,686	\$3,475	\$1,828	\$1,760	NA	NA
Annual Non-Trip Related per Car Type         \$5,769         \$40,383         \$2,885         \$13,461         NA           Total OPRTNG COST per Car         \$2,648         \$5,398         \$2,790         \$2,722         NA	Annual Non-Trip Related per Car	\$962	\$1,923	\$962	\$962	NA .	NA
Total OPRTNG COST per Car \$2,648 \$5,398 \$2,790 \$2,722 NA	Annual Opring Trip Related per Car Type	\$10,118	\$72,970	\$5,485	\$24,641	NA	NA
	Annual Non-Trip Related per Car Type	<u>\$5,769</u>	<u>\$40,383</u>	<u>\$2,885</u>	<u>\$13,461</u>	<u>NA</u>	<u>NA</u>
	Total OPRTNG COST per Car	\$2,648	\$5,398	\$2,790	\$2,722	NA	NA
Total CAPITAL COST per Car \$3,538 \$7,076 \$3,538 \$3,538 NA	Total CAPITAL COST per Car	\$3,538	\$7,076	\$3,538	\$3,538	NA	NA

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles: Length in Hours: 160

Expected Trips per Day:

3.03 4

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Expected

	151-Odd Turbo Power Club	170 Turbo <u>Coach</u>	170 Turbo Cafe	150-Even Turbo Power Coac	NA <u>NA</u>	NA NA
		3	1	1	NA.	NA.
Quantity of cars	1 27	72	52	40	NA.	NA NA
Capacity (# people) - seated Toilets per car	1	2	1	1	NA	NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:		•				
Human Waste/day (gals)	12.12	32.33	23.35		NA	NA 7.00
# Flushes/Person-day	7.00	7.00	7.00		7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10		1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7		7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172		0.172	0.172
Flush Fluids/day (gals)	35.8	95.4	68.9	53.0	NA	NA
Capacity Req'd/day (gals)	24.2	64.5	46.6		NA	NA
Adj. Capacity Req'd w/ Buffer	30.2	80.6	58.2		NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	238 331%	89 124%	124 1729		NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	19.7	7.4	10.2	13.3	NA	NA
As a percentage of 3 days	655.14%	245.68%	340.17	% 442.22%	NA	NA
Consecutive Trips before pumpout	78.0	29.0	40.0	53.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000		\$10,000	\$10,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$10,000</u>	<u>\$5,000</u>		<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$15,000	\$20,000	\$15,000	\$15,000	· NA	NA
Equipment Installation					A = W 0	0570
Collection System per Car	\$576	\$576	\$576		\$576	\$576
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	\$288		<u>NA</u>	<u>NA</u> NA
- Total Installation Cost	\$864	\$1,152	\$864		NA NA	NA NA
Total Capital Cost	\$15,864	\$21,152	\$15,864	\$15,864	NA	- NA

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles: Length in Hours: 160 3.03 4

Expected Trips per Day: Manufacturer:

.

Equipment:

Microphor Gravity

Scenario:

Expected

All data on per car basis (unless noted t	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:					<del></del>	
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$216	\$432	\$216	\$216	NA	NA
Annual spare parts cost per yr	<u>\$450</u>	<u>\$600</u>	<u>\$450</u>	<u>\$450</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$666	\$1,032	\$666	\$666	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing				`	•	
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal					-	
- Pump out Cost	\$0.24	\$0.64	\$0.47	\$0.36	NA	NA
- Pump out minutes	0.40	1.07	0.78	0.60	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$1:64</u>	<u>\$4,38</u>	<u>\$3.17</u>	<u>\$2.44</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$7.89	\$17.03	\$9.63	\$8.79	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	. 0	0	0	0	NA	. NA
Average Cost Per Delay	\$0	\$0	\$0	<b>\$</b> 0	NA	NA
Subtotal- Oprtng Trip Related	\$8	\$17	\$10	\$9	NA NA	NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA .	NA
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$2,015	\$4,351	\$2,461	\$2,247	NA	NA
Annual Non-Trip Related per Car	\$666	\$1,032	\$666	\$666	NA	NA
Annual Oprtng Trip Related per Car Type	\$12,089	\$91,372	\$7,383	\$31,457	NA	NA
Annual Non-Trip Related per Car Type	<u>\$3,</u> 996	<u>\$21,672</u>	<u>\$1,998</u>	\$9,324	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,681	\$5,383	\$3,127	\$2,913	NA NA	NA
Total CAPITAL COST per Car	\$15,864	\$21,152	\$15,864	\$15,864	NA	~ NA
Total OPRTNG COST for all cars	\$16,085	\$113,044	\$9,381	\$40,781	NA	NA
Total CAPITAL COST for all cars	\$95,184	\$444,192	\$47,592	\$222,096	NA	'NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles:

160

Length in Hours:

3.03

Expected Trips per Day: Manufacturer:

Equipment:

Evac

Scenario:

Ultimate Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	otherwise)					
	151-Odd Turbo Power <u>Clu</u> b	170 Turbo Coach	170 Turbo Cafe	150-Even Turbo Power Coac	NA <u>NA</u>	NA N <u>A</u>
Quantity of cars	1	3	1	1	NA NA	NA NA
Capacity (# people) - seated	27	72	52	40	NA NA	NA NA
Toilets per car		2	1	1	NA	NA
Average persons/toilet on train	27.0	36.0	<b>52.0</b>	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	_ 0.047	0.047	0.047
Flush Fluids/day (gals)	9.8	26.1	18.8	14.5	NA	NA
Capacity Req'd/day (gals)	11.1	29.5	21.3	16.4	NA	NA
Adj. Capacity Req'd w/ Buffer	13.8	36.9	26.6	20.5	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	347 482%	130 181%	180 250%		NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	28.7	10.7	14.9	19.3	NA	NA
As a percentage of 3 days	955.18%	358.19%	495.96%	644.75%	NA	NA
Consecutive Trips before pumpout	114.0	42.0	59.0	77.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000		\$12,000	\$12,000
Toilet Cost per Car	<u>\$2,900</u>	<u>\$5,800</u>	<u>\$2,900</u>	\$2,900	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,900	\$17,800	\$14,900	\$14,900	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	. \$1,728	\$2,016	\$1,728		NA	NA
Total Capital Cost	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA NA

#250

Route Number:

Amtrak Route: Origin/Destination: Electric City Express

Schenectady-New York City

160

Length in Miles: Length in Hours:

3.03

Expected Trips per Day:

Manufacturer: Equipment:

Evac Ultimate

Scenario:

Expected

* All data on per car basis (unless noted of	otherwise)					•
, , , , , , , , , , , , , , , , , , , ,	151-Odd	170	170	150-Even	NA ·	NA NA
OPERATING COSTS	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	3	3 3	3		. <u>3</u>	<u>3</u>
Servicing Cost/Year	\$216	\$432	\$216	_	NA	· NA
Annual spare parts cost per yr	\$447	\$534	\$447	-	NA	NA NA
Total- Oprtng Non-Trip Related	\$663	\$966	\$663	\$663	NA NA	NA NA
Trip Related Costs:			·			
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•-	•-		•-		• -
- Pump out Cost	\$0.11	\$0.29	\$0.21	\$0.16	NA	NA
- Pump out minutes	0.18	0.49	0.35	0.27	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	NA.
- Waste Disposal	\$0.75	\$2.00	\$1.45		NA	NA.
Subtotal- End of Day/Trip Srvc	\$6.86	\$14.30	\$7.66		NA	NA NA
Train Delay:	<b>V</b> 0.55	<b>411.00</b>	<b>41.50</b>	<b>VI.123</b>	, , ,	
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops reg'd	0	0	0	0	NA NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA NA	NA.
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	<u>0.0</u> 0	. <u>0.0</u> 0	<u>9.9</u> 0	NA	NA NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA NA	NA NA
Subtotal- Oprtng Trip Related	\$0 \$7	\$14	\$8	\$0 \$7	NA NA	NA NA
Sublotal-Opting hip helated		Φ14	Φ0	Φ/	INA	- NA
Total # Cars in fleet	6	21	3	14	· <b>NA</b>	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA.	NA
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	. NA
Days per Trip (min. of 1)	1	1	1	1	<u>.</u>	1
Annual Oprtng Trip Related per Car	\$1,753	\$3,654	\$1,957	\$1,859	<sup>7</sup> NA	NA
Annual Non-Trip Related per Car	\$663	\$966	\$663	\$663	NA	NA
Annual Oprtng Trip Related per Car Type	\$10,520	\$76,725	\$5,872	\$26,032	NA	NA
Annual Non-Trip Related per Car Type	<u>\$3,978</u>	<u>\$20,286</u>	<u>\$1,989</u>	<u>\$9,282</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,416	\$4,620	\$2,620	\$2,522	. NA	NA
Total CAPITAL COST per Car	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA
Total OPRTNG COST for all cars	\$14,498	\$97,011	\$7,861	\$35,314	NA	NA
Total CAPITAL COST for all cars	\$99,768	\$416,136	\$49,884	\$232,792	NA NA	NA NA

#250

Route Number:

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Expected

All data on per car basis (unless noted	151-Odd	170	170	150-Even	NA	NA
	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	NA NA	NA NA
Quantity of cars	1	3	1	1	NA	NA NA
Capacity (# people) - seated	27	72	52		NA	NA NA
Toilets per car	1	. 2	1	1	NA	NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	54.7	145.9	105.4	81.1	· NA	NA
Capacity Req'd/day (gals)	33.8	90.0	65.0	50.0	NA	NA
Adj. Capacity Req'd w/ Buffer	42.2	112.5	81.3	62.5	NA	NA
Tank Capacity per Car (gals)	50	100	50	50 ^	NA	· NA
Continuous Service Hours Supported As a percentage of 72 hours	28 40%	21 30%	15 21%		NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	2,3	1.8	1.2	1.6	NA	NA
As a percentage of 3 days	78.23%	58.67%	40.62%	6 52.80%	NA	NA
Consecutive Trips before pumpout	9.0	7.0	4.0	6.0	NA	. NA
CAPITAL COSTS						
Collection System per Car	\$4,000	\$8,000	\$4,000	\$4,000	NA	· NA
Toilet Cost per Car	<u>\$3,000</u>	<u>\$6,000</u>	. <u>\$3,000</u>	<u>\$3,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$7,000	\$14,000	\$7,000	\$7,000	. NA	NA
Equipment Installation						
Collection System per Car	\$288	\$576	\$288	\$288	NA	NA
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>		<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$1,152	\$576	\$576	NA	NA
Total Capital Cost	\$7,576	\$15,152	\$7,576	\$7,576	NANA	NA
					,	

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles:

160

Length in Hours:

3.03

Expected Trips per Day: Manufacturer:

Equipment:

Railtech WTS 8300

Scenario:

Expected

•	151-Odd Turbo Power Club	170 <u>Tur</u> bo Coach	170 Turbo Cafe	150-Even Turbo Power Coac	NA · NA	N/ N/
OPERATING COSTS	TOIDO TOWER OIDD	TGIDO COGCII	Tuibo Cale	TOTO TOWER COAC	770	14
Non-Trip Related Costs:						
Labor cost/major servicing	\$72	. \$144	\$72	\$72 <sup>-</sup>	· NA	N.
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$216	\$432	\$216	\$216	NA	N.
Annual spare parts cost per yr	<u>\$210</u>	<u>\$420</u>	<u>\$210</u>	<u>\$210</u>	<u>NA</u>	<u>N</u>
Total- Oprtng Non-Trip Related	\$426	\$852	\$426	\$426	NA	N.
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	N
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.34	\$0.90	\$0.65	\$0.50	NA .	N/
- Pump out minutes	0.56	1.50	1.08	0.83	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	N
- Waste Disposal	<u>\$2.30</u>	<u>\$6.12</u>	<u>\$4.42</u>	<u>\$3.40</u>	<u>NA</u>	N/
Subtotal- End of Day/Trip Srvc	\$8.63	\$19.02	\$11.07	\$9.90	NA ,	. N
Train Delay:		•				
- Pump out volume req'd	0-	0	0	0	NA	N
- # of stops req'd	. 0	0	0	0	NA	N/
- Pump out minutes	0.0	0.0	0.0	0.0	`NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>NA</u>	N/
- Total Time Delay(mins/car)	. 0	· , <u> </u>		<u> </u>	` NA	N
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	. N
Subtotal- Oprtng Trip Related	\$9	\$19	\$11	\$10	NA	N/
Total # Cars in fleet	6	21	. 3	14	NA	N/
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	N/
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	N/
Days per Trip (min. of 1)	1	1	1	1	<u>1</u>	1
Annual Oprtng Trip Related per Car	\$2,206	\$4,860	\$2,828	\$2,529	NA	N/
Annual Non-Trip Related per Car	\$426	\$852	\$426	\$426	NA	N/
Annual Opring Trip Related per Car Type	\$13,234	\$102,053	\$8,485	\$35,413	NA	N/
Annual Non-Trip Related per Car Type	<u>\$2,556</u>	<u>\$17,892</u>	<u>\$1,278</u>	<u>\$5,964</u>	<u>NA</u>	<u>N</u> /
Total OPRTNG COST per Car	\$2,632	\$5,712	\$3,254	\$2,955	NA	N/
Total CAPITAL COST per Car	\$7,576	\$15,152	\$7,576	\$7,576	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$15,790 \$45,456	\$119,945 \$318,192	\$9,763 \$22,728	\$41,377 \$106,064	NA NA	i N

Route Number:

C3 Cost Details, Favorable Scenario, Each Toilet System

C3.1 Sunset Limited, New Orleans-Los Angeles

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033

Expected Trips per Day:

43.00

Manufacturer:

Equipment:

Monogram Modified Vacuum

Favorable

Scenario:

All data on per dat basis (unless noted o	•					
	34000 <u>Coach Super</u>	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	4	1	3	.1	NA	NA
Capacity (# people) - seated	75	72	44	86	NA	NA
Toilets per car	6	4	12	2	NA	, NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	, NA
Car Waste Data (per car)						
Black Water:			•			
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1,00
Adj. # Flushes/Person-day	1.00	6	1.00	1.00	1.00	1.00
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	28.4	27.2	16.6	32.5	NA	0.003 NA
ridari ridida/day, (gala)	20.4	21.2	10.0	32.3	NA	NO.
Capacity Req'd/day (gals)	62.0	59.5	36.4	71.1	NA	NA
Adj. Capacity Req'd w/ Buffer	77.5	74.4	45.5	88.9	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	73 101%	76 105%	124 172%	63 88%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	3.0	3.2	5.2	2.6	NA	NA
As a percentage of 3 days	101.03%	105.24%	172.22%	88.11%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	, NA
CAPITAL COSTS						•
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	\$15,000	\$10,000	\$30,000	\$5,000	. <u>NA</u>	<u>NA</u>
- Total Equip Cost	\$36,000	\$31,000	\$51,000	\$26,000	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	\$3,456	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Total Capital Cost	\$39,168	\$33,592	\$55,896	\$28,016	, NA	NA_
					<u></u>	

Sunset Limited

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours: Expected Trips per Day: 43.00

Manufacturer:

Equipment:

Monogram Modified Vacuum

Scenario:

Favorable

· · · · · · · · · · · · · · · · · · ·	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	. 39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:			,		_	<del></del> ,
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	<u>2</u>	2	2	<u>2</u>	· <u>2</u>	<u>2</u>
Servicing Cost/Year	\$864	\$576	\$1,728	\$288	NA	NA
Annual spare parts cost per yr	<u>\$360</u>	<u>\$310</u>	<u>\$510</u>	<u>\$260</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,224	\$886	\$2,238	\$548	NA .	NA_
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing			•			
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal				•		
- Pump out Cost	\$0.62	\$0.60	\$0.36	\$0.71	NA	NA
- Pump out minutes	1.03	0.99	0.61	1.19	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$1.89</u>	<u>\$1.81</u>	<u>\$1.11</u>	<u>\$2.17</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$38.51	\$26.41	\$73.47	\$14.88	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	NA	NA
-# of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$39	\$26	\$73	\$15	NA_	. NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	NA	NA
Days per Trip (min. of 1)	2	2	2	2	<u>2</u>	2
Annual Oprtng Trip Related per Car	\$4,217	\$2,892	\$8,045	\$1,629	NA	NA
Annual Non-Trip Related per Car	\$1,224	\$886	\$2,238	\$548	NA	NA
Annual Oprtng Trip Related per Car Type	\$383,727	\$60,728	\$547,074	\$9,775	. NA	NA
Annual Non-Trip Related per Car Type	<u>\$111.384</u>	\$18,606	<u>\$152,184</u>	\$3.288	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,441	\$3,778	\$10,283	\$2,177	NA	. NA
Total CAPITAL COST per Car	\$39,168	\$33,592	\$55,896	\$28,016	NA	NA
Total OPRTNG COST for all cars	\$495,111	\$79,334	\$699,258	\$13,063	NA.	NA
Total CAPITAL COST for all cars	\$3,564,288	\$705,432	\$3,800,928	\$168,096	NA NA	N <b>A</b>

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

1

Expected Trips per Day:

Monogram

Manufacturer:

Self-Cont'd Recirc

Equipment: Scenario:

Favorable

All data off per dar basis (diffess floted	Other Mise)					
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
Committee of a second	<u> </u>	-			NA NA	NA NA
Quantity of cars Capacity (# people) - seated	75	-1 72	3 44	1 86	NA NA	NA NA
Toilets per car	6	4	12	2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA NA	, <b>NA</b>
Car Waste Data (per car)	•					
Black Water:					2	
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1,00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	33.7	32.3	19.8	38.6	NA	NA
Adj. Capacity Req'd w/ Buffer	42.1	40.4	24.7	48.3	NA	NA
Tank Capacity per Car (gals)	81	54	162	27	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	46 64%	32 45%	157 219%	13 5 19%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.9	1.3	6.6	0.6	NA	NA
As a percentage of 3 days	64.14%	44.54%	218.67%	18.65%	NA .	NA
Consecutive Trips before pumpout	1.0	0.0 ,	3.0	0.0	·· · NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	\$19,500	<u>\$13,000</u>	\$39,000	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$19,500	\$13,000	\$39,000	\$6,500	NA.	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Total Capital Cost	\$21,228	\$14,152	\$42,456	\$7,076	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours: Expected Trips per Day: 43.00

Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS	<del></del>				<del></del>	
Non-Trip Related Costs:	04 <b>7</b> 00	<b>0.1.150</b>	00.450	25.70	N.1.4	
Labor cost/major servicing	\$1,728	\$1,152	\$3,456	\$576	, NA	NA
Frequency per Year	2	2	2	2	<u>2</u>	2
Servicing Cost/Year	\$3,456	\$2,304	\$6,912	\$1,152	NA	NA
Annual spare parts cost per yr	<u>\$195</u>	<u>\$130</u>	<u>\$390</u>	<u>\$65</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$3,651	\$2,434	\$7,302	\$1,217	. NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•-	•-		, ,	•-	*-
- Pump out Cost	\$0.34	\$8.40	\$0.20	\$4.32	NA	NA
- Pump out minutes	0.56	0.00	0.33	0.19	NA NA	NA NA
- Connect/Disc. minutes	0.0	14.0	0.0	7.0	NA NA	NA NA
- Waste Disposal	\$1.33	\$1.27	\$0.78	\$1.52	NA NA	NA NA
Subtotal- End of Day/Trip Srvc	\$37.66	\$33.67	\$72.98	\$17.84	NA NA	NA NA
Train Delay:	\$37,00	φ33.07	Ψ12.90	\$17.04	IVA	IVA
- Pump out volume reg'd	0	54	. 0	27	NA	NA
•	0	1	0	1	NA NA	
- # of stops req'd	0.0	0.9	0.0	0.5		NA NA
- Pump out minutes					, NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>14.0</u>	<u>0.0</u>	<u>7.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	15	0	7	NA	NA
Average Cost Per Delay	\$0	\$9	. \$0	\$4	NA	NA
Subtotal- Opring Trip Related	\$38	\$43	\$73	\$22	. NA	NA NA
Total # Cars in fleet	91	21	. 68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	NA	NA
Days per Trip (min. of 1)	2	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	2
Annual Oprtng Trip Related per Car	\$4,124	\$4,666	\$7,991	\$2,443	NA	NA
Annual Non-Trip Related per Car	\$3,651	\$2,434	\$7,302	\$1,217	NA	NA
Annual Oprtng Trip Related per Car Type	\$375,304	\$97,991	\$543,381	\$14,656	NA	ŇA
Annual Non-Trip Related per Car Type	\$375,304 \$332,241	\$51,114°	\$496,536	\$7,30 <u>2</u>	NA NA	NA NA
Annual Non-Trip Helated per Call Type	9332,241	<u>\$31,114</u>	<u>\$490,556</u>	\$7,302	<u>INA</u>	INA
Total OPRTNG COST per Car	\$7,775	\$7,100	\$15,293	\$3,660	NA	NA
Total CAPITAL COST per Car	\$21,228	\$14,152	\$42,456	\$7,076	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$707,545 \$1,931,748	\$149,105 \$297,192	\$1,039,917 \$2,887,008	\$21,958 \$42,456	NA NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Favorable

All data on per car basis (unless noted of	inerwise)				*	
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
Out with the second	·				NA NA	NA NA
Quantity of cars	4 75	1 72	3 44	1 86	NA NA	NA NA
Capacity (# people) - seated Toilets per car	6	4	12	2	NA NA	· NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)						
Black Water:	•					
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	77.4	74.3	45.4	88.8	NA	NA
Capacity Req'd/day (gals)	111.1	106.6	65.2	127.4	NA	NA
Adj. Capacity Req'd w/ Buffer	138.8	133.3	81.5	159.2	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	- 300
Continuous Service Hours Supported As a percentage of 72 hours	52 72%	54 75%	88 123%	45 63%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	. 24	24
Service Days Supported	2.2	2.3	3.7	1.9	NA	, NA
As a percentage of 3 days	72.02%	75.02%	122.77%	62.81%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS						-
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$30,000	<u>\$20,000</u>	<u>\$60,000</u>	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$40,000	\$30,000	\$70,000	\$20,000	NA	NA
Equipment Installation				•		
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,304	\$1,728	\$4,032	\$1,152	NA	NA
Total Capital Cost	\$42,304	\$31,728	\$74,032	\$21,152	· NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Manufacturer: Equipment: Microphor

Scenario:

Gravity Favorable

	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS					<b></b>	
Non-Trip Related Costs:	_					
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	2	<u>2</u>	2	<u>2</u>	<u>2</u>	2
Servicing Cost/Year	\$864	\$576	\$1,728	\$288	NA	NA
Annual spare parts cost per yr	<u>\$400</u>	<u>\$300</u>	<u>\$700</u>	\$200	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,264	\$876	\$2,428	\$488	NA NA	NA
Trip Related Costs:			-			
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
•	\$0 \$0	\$0		\$12 \$0	\$0	\$0
- Light Repair Pump out and Disposal	20	20	\$0	ΦU	ΦΟ	ΦU
•	¢1 11	¢1.07	, \$0.65	¢1 07	A1A	NIA
- Pump out Cost	\$1.11 1.85	\$1.07 1.78	\$0.65 1.09	\$1.27 2.12	NA NA	NA NA
- Pump out minutes	0.0					
- Connect/Disc. minutes	\$3.38	0.0	0.0	0.0	NA NA	NA
- Waste Disposal	<u>\$3.38</u> \$40.49	<u>\$3.25</u> \$28.31	<u>\$1.98</u> \$74.64	<u>\$3.88</u> \$17.15	<u>NA</u> NA	. <u>NA</u> NA
Subtotal- End of Day/Trip Srvc Train Delay:	<b>\$40.49</b>	\$28.31	\$74.04	\$17.15	INA	INM
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops reg'd	Ò	0	0	0	NA NA	NA NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Connect/Disc. minutes	0.0 0.0				NA NA	
-Total Time Delay(mins/car)	0.0	<u>0.0</u> 0	<u>0.0</u> 0	. <u>0.0</u>	NA NA	<u>NA</u> NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA NA	NA NA
Subtotal- Opring Trip Related	\$40	\$28	\$75	\$17	NA NA	NA NA
Sublotal-Opting Trip Related	<b>\$40</b>	\$20	<b>475</b>	Φ17	INA .	INA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	NA	NA
Days per Trip (min. of 1)	2	2	. 2	<u>2</u>	<u>2</u>	<u>2</u>
Annual Opring Trip Related per Car	\$4,434	\$3,100	\$8,173	\$1,878	NA	NA
Annual Non-Trip Related per Car	\$1,264	\$876	\$2,428	\$488	NA	NA
Annual Opring Trip Related per Car Type	\$403,502	\$65,108	\$555,743	\$11,270	NA	NA
Annual Non-Trip Related per Car Type	<u>\$115,024</u>	<u>\$18,396</u>	<u>\$165,104</u>	<u>\$2.928</u>	<u>NA</u>	· <u>NA</u>
Total OPRTNG COST per Car	\$5,698	, \$3,976	\$10,601	\$2,366	NA	NA
	\$42,304	\$31,728	\$74,032	\$21,152	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination: Length in Miles:

New Orleans-Los Angeles

2,033

Length in Hours: Expected Trips per Day: 43.00

Manufacturer: Equipment:

Evac Ultimate

Scenario:

Favorable

* All data on per car basis (unless noted o	therwise)				•	
	34000	39940	32000	39970	NA	NA
<del>.</del>	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA .	NA
Car Waste Data (per car)					•	
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	ŊA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	. 0.047
Flush Fluids/day (gals)	21.2	20.3	12.4	24.3	NA	NA
Capacity Req'd/day (gals)	54.8	52.6	32.2	62.9	NA	NA
Adj. Capacity Req'd w/ Buffer	68.5	65.8	40.2	78.6	NĄ	NA
Tank Capacity per Car (gals)	200	200	200	200	200:	200
Continuous Service Hours Supported As a percentage of 72 hours	70 97%	73 101%	119 166%	61 6 85%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	. 24	24	24
Service Days Supported	2.9	3.0	5.0	2.5	NA	NA
As a percentage of 3 days	97.28%	101.33%	165.82%	84.84%	NA:	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$17,400</u>	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$29,400	\$23,600	\$46,800	\$17,800	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1.728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Total Capital Cost	\$32,568	\$26,192	\$51,696	. \$19,816	NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

43.00

Manufacturer:

Evac

Equipment: Scenario: Ultimate Favorable

Scenario:	Favorable					
* All data on per car basis (unless noted of	otherwise)					
, ,	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:						_
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	<u>2</u>	2	<u>2</u>	<u>2</u>	2	<u>2</u>
Servicing Cost/Year	\$864	\$576	\$1,728	\$288	NA	NA
Annual spare parts cost per yr	<u>\$294</u>	<u>\$236</u>	<u>\$468</u>	<u>\$178</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,158	\$812	\$2,196	\$466	NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	* \$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.55	\$0.53	\$0.32	\$0.63	NA	NA
- Pump out minutes	0.91	0.88	0.54	1.05	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$1.67	\$1.60	\$0,98	<b>\$1.91</b>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$38.22	\$26.13	\$73.30	\$14.54	NA NA	NA
Train Delay:						
- Pump out volume reg'd	0	0	0	.0	NA	NA
- # of stops req'd	0	0	0	0	NA	NÄ
- Pump out minutes	0.0	0.0	0.0	0.0	NA .	NA
- Connect/Disc. minutes	0.0	0.0	· <u>0.0</u>	0.0	NA ·	<u>NA</u>
- Total Time Delay(mins/car)	. 0	0	0	. 0	NA	NA
Average Cost Per Delay	\$0	\$0	. \$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$38	\$26	\$73	\$15	NA NA	NA NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NÁ	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	· NA	NA
Days per Trip (min. of 1)	2	2	2	2	2	<u> 2</u>
Annual Opring Trip Related per Car	\$4,185	\$2,861	\$8,026	\$1,593	NA	NA
Annual Non-Trip Related per Car	\$1,158	\$812	\$2,196	\$466	NA .	NA
Annual Oprtng Trip Related per Car Type	\$380,825	\$60,085	\$545,801	\$9,555	NA	NA
Annual Non-Trip Related per Car Type	<u>\$105,378</u>	<u>\$17,052</u>	<u>\$149,328</u>	<u>\$2,796</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,343	\$3,673	\$10,222		NA	NA
Total CAPITAL COST per Car	\$32,568	\$26,192	\$51,696	\$19,816	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$486,203 \$2,963,688	\$77,137 \$550,032	\$695,129 \$3,515,328	\$12,351 \$118,896	NA NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033

Expected Trips per Day:

43.00

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Favorable

Ali data on per car basis (unless noted	•					
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA -	NA <u>NA</u>
					<u>NA</u>	
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)			•	•		
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	118.4	113.7	69.5	135.8	. NA	NA
Capacity Req'd/day (gals)	152.1	146.0	89.2	174.4	. NA	NA
Adj. Capacity Req'd w/ Buffer	190.1	182.5	111.5	218.0	NA	NA
Tank Capacity per Car (gals)	150	100	300	100	NA	NA NA
Continuous Service Hours Supported As a percentage of 72 hours	19 26%	13 18%	65 90%	11 15%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	0.8	0.5	2.7	0.5	NA	NA NA
As a percentage of 3 days	26.30%	18.26%	89.66%	15.29%	NA	NA
Consecutive Trips before pumpout	0.0	0.0	1.0	0.0	NA	NA
CAPITAL COSTS				•		
Collection System per Car	\$12,000	\$8,000	\$24,000	\$8,000	NA	NA
Toilet Cost per Car	<u>\$18,000</u>	<u>\$12,000</u>	<u>\$36,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$30,000	\$20,000	\$60,000	\$14,000	NA	NA
Equipment Installation						
Collection System per Car	\$864	\$576	\$1,728	\$576	NA	NA
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$1,728	\$5,184	\$1,152	NA	NA
Total Capital Cost	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination: Length in Miles:

New Orleans-Los Angeles

Length in Hours:

Expected Trips per Day:

2,033 43.00

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Favorable

* All data on per car basis (unless noted ot	•					
	34000	39940	32000	39970	NA	NA
OPERATING COSTS	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	\$144°	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	2	2	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$864	\$576	\$1,728	\$288	NA	NA
Annual spare parts cost per yr	<u>\$300</u>	<u>\$200</u>	<u>\$600</u>	<u>\$140</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,164	\$776	\$2,328	\$428	NA	NA
Trip Related Costs:		,				
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	Ψ3	•	40	40		Ψ0
- Pump out Cost	\$6.32	\$4.66	\$0.89	\$4.94	NA	NA
- Pump out minutes	0.03	0.77	1.49	1.24	NA NA	NA NA
- Connect/Disc. minutes	10.5	7.0	0.0	7.0	NA NA	NA NA
- Waste Disposal	\$4.63	\$4.45	\$2 <u>.72</u>	\$ <u>5.31</u>	NA NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$46.95	\$33,11	\$75,61		NA ·	NA.
Train Delay:	•	*		<del>,-</del> -		
- Pump out volume reg'd	150	100	0	100	NA	NA
- # of stops req'd	1	1	0	1	NA	NA
- Pump out minutes	2.5	1.7	0.0	1.7	NA	NA
- Connect/Disc. minutes	<u>10.5</u>	<u>7.0</u>	<u>0.0</u>	<u>7.0</u>	. <u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	13	9	·	9	NA NA	NA
Average Cost Per Delay	\$8	\$5	\$0	· \$5	NA	NA
Subtotal- Oprtng Trip Related	\$55	\$38	\$76	\$27	NA NA	NA NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14.892	1.314	NA	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
	_	-	_	-	-	-
Annual Opring Trip Related per Car	\$5,996	\$4,195	\$8,279	\$3,006	NA	NA
Annual Non-Trip Related per Car	\$1,164	\$776	\$2,328	\$428	NA	NA
Annual Oprtng Trip Related per Car Type	\$545,592	\$88,088	\$562,993	\$18,039	NA	NA
Annual Non-Trip Related per Car Type	\$105,924	<u>\$16,296</u>	<u>\$158,304</u>	\$2,568	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,160	\$4,971	\$10,607	\$3,434	NA	NA
Total CAPITAL COST per Car	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA ·
Total OPRTNG COST for all cars	\$651,516	\$104,384	\$721,297	\$20,607	NA	NA NA
Total CAPITAL COST for all cars	\$2,965,872	\$456,288	\$4,432,512		NA NA	NA NA
TOTAL OUT TOTAL COST TOT AIR CATS	φε,300,072	φ <del>4</del> 30,208	φ <del>4,43</del> 2,312	್ಷ ಕ್ಷಾಗ್ರಿಕ್ ಕ್ಷಾಗ್ರಿಕ್	IVA	NO.

C3.2 California Zephyr, Chicago-Oakland

Amtrak Route:	California Zephyr	
Origin/Destination:	Chicago-Oakland	
Length in Miles:	2,422	
Length in Hours:	51.17	,
Expected Trips per Day:	1	
Manufacturer:	Monogram	
Carrier	M - 400 - 1 M	

Route Number: #5-6

Expected rips per bay.						
Manufacturer:	Monogram					
Equipment:	Modified Vacuum				•	
Scenario:	Favorable		2	r		
* All data on per car basis (unless noted	·					
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	NA NA
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated Toilets per car	40 4	44 12	78 5	75 6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)						
Black Water:		•				•
Human Waste/day (gals)	17.96	19.76	35.02	33.68	, NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	· 6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	15.1	16.6	29.5	28.4	NA	NA
Capacity Req'd/day (gals)	33.1	36.4	64.5	62.0	NA	NA
Adj. Capacity Req'd w/ Buffer	41.4	45.5	80.6	77.5	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	136 189%	124 172%		73 101%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	5.7	5.2	2.9	3.0	NA	NA
As a percentage of 3 days	189.44%	172.22%	6 97.15%	101.03%	NA	NA
Consecutive Trips before pumpout	2.0	2.0	1.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$10,000</u>	\$30,000		<u>\$15,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$31,000	\$51,000	\$33,500	\$36,000	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1.152</u>	<u>\$3,456</u>		<ul> <li>\$1,728</li> </ul>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$4,896	\$2,880	\$3,168	NA	NA
Total Capital Cost	\$33,592	\$55,896	\$36,380	\$39,168	NA	NA

Amtrak Route: California Zephyr Route Number: #5-6

Origin/Destination: Length in Miles:

Chicago-Oakland 2,422

Length in Hours: Expected Trips per Day: 51.17

Manufacturer: Equipment:

Monogram Modified Vacuum

Scenario:	Favorable			•		
* All data on per car basis (unless noted o	therwise)					
	39900 Trans Dorm Coach	32000 Slooper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	N/ N/
OPERATING COSTS	mans bonn coach	Sieeper Super	Day Coacii Super	Coach Super	100	.,14
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	N/
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u> .	<u>2</u>	2
Servicing Cost/Year	\$576	\$1,728	\$720	\$864	NA	N/
Annual spare parts cost per yr	<u>\$310</u>	<u>\$510</u>	<u>\$335</u>	<u>\$360</u>	<u>NA</u>	<u>N/</u>
Total- Opring Non-Trip Related	\$886	\$2,238	\$1,055	\$1,224	NA _	N/
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	N/
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	<b>4</b> 0			***	•	*-
- Pump out Cost	\$0.33	\$0.36	\$0.65	\$0.62	NA	N/
- Pump out minutes	0.55	0.61	1.08	1.03	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	N/
- Waste Disposal	\$1.20	\$1.32	\$2.34	\$2.25	NA NA	NA NA
Subtotal- End of Day/Trip Srvc	\$25.53	\$73.68	\$32.98	\$38.87	NA NA	. NA
• •	φ <b>2</b> 0.00	\$73.00	φυ2.90	φ30.07	INA	146
Train Delay:	•	•	•	•	A1A	N/A
- Pump out volume req'd	0	0	0	0	NA	N/
- # of stops reg'd	0	0	0	0	NA	NA NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	» NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	. 0	0	NA	NA
Average Cost Per Delay	\$0	\$0	.\$0	\$0	NA	N/
Subtotal- Oprtng Trip Related	\$26	\$74	\$33	\$39	NA NA	NA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	7,884	14,892	10,512	19,929	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Opring Trip Related per Car	\$1,864	\$5,379	\$2,408	\$2,837	NA	NA
Annual Non-Trip Related per Car	\$886	\$2,238	\$1,055	\$1,224	NA	NA
Annual Oprtng Trip Related per Car Type	\$67,092	\$365,761	\$115,573	\$258,203	NA	NA
Annual Non-Trip Related per Car Type	<u>\$31,896</u>	\$152,184	<u>\$50,640</u>	\$111,384	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,750	\$7,617	\$3,463	\$4,061	NA	a NA
Total CAPITAL COST per Car	\$33,592	\$55,896	\$36,380	\$39,168	` NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$98,988 \$1,209,312	\$517,945 \$3,800,928	\$166,213 \$1,746,240	\$369,587 \$3,564,288	NA NA	NA NA

Amtrak Route: California Zephyr Route Number:

Origin/Destination: Length in Miles: Chicago-Oakland

ago-Oakland 2,422

Length in Hours:

51.17

Expected Trips per Day: Manufacturer: , , **1**,

Manuracturer Equipment: Monogram Self-Cont'd Recirc

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

<ul> <li>All data on per car basis (unless noted</li> </ul>	l otherwise)					
	39900	32000	31000	34000	- NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
Quantity of cars	1	3		5	NA	NA
Capacity (# people) - seated Toilets per car	40 4	44 12	5	75 6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)	•					·
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33,68	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	18.0	19.8	35.0	33.7	NA	NA NA
Adj. Capacity Req'd w/ Buffer	22.5	24.7		42.1	NA	NA
Tank Capacity per Car (gals)	54	162	67.5	81	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	58 80%	157 2199		46 64%	NA NA	NA NA
Probable Service Hours per Day	24	.24	24	24	24	24
Service Days Supported	2.4	6.6	1.5	1.9	NA	NA
As a percentage of 3 days	80.18%	218.679	% 51.40%	64.14%	NA	NA
Consecutive Trips before pumpout	1.0	3.0	0.0	0.0	NA	NA
CAPITAL COSTS			-			
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$13,000</u>	<u>\$39,000</u>	<u>\$16,250</u>	<u>\$19,500</u>	<u>NA</u>	. <u>NA</u>
- Total Equip Cost	\$13,000	\$39,000	\$16,250	\$19,500	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0		\$0	\$0	\$0
Toilet Cost per Car	<u>\$1.152</u>	<u>\$3,456</u>		<u>\$1,728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$3,456		\$1,728	NA	NA.
Total Capital Cost	\$14,152	\$42,456	\$17,690	\$21,228	NA	NA NA

#5-6

э

California Zephyr

Route Number: #5-6

Origin/Destination:

Chicago-Oakland

Length in Miles:

2,422

Length in Hours: Expected Trips per Day: 51.17

Manufacturer:

Monogram Self-Cont'd Recirc

Equipment: Scenario:

Favorable

Scenario:	Favorable					
* All data on per car basis (unless noted o	therwise)					
	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
OPERATING COSTS  Non-Trip Related Costs:						
Labor cost/major servicing	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	2	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$2,304	\$6,912	\$2,880	\$3,456	NA	NA
Annual spare parts cost per yr	<u>\$130</u>	\$390	<u>\$163</u>	<u>\$195</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$2,434	\$7,302	\$3,043	\$3,651	NA NA	NA NA
Trip Related Costs:	-		•			
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA.
- Light Repair	\$0	· \$0	\$0	\$0	\$0	\$0
Pump out and Disposal						•
- Pump out Cost	\$0.18	\$0.20	\$10.50	, \$12.60	NA	NA
- Pump out minutes	0.30	0.33	0.00	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	17.5	21.0	NA	NA
- Waste Disposal	\$0.84	\$0.93	\$1.64	<u>\$1.58</u>	<u>NA</u>	NA
Subtotal- End of Day/Trip Srvc	\$25.02	\$73.12	\$42.14	\$50.18	. NA	NA
Train Delay:						
- Pump out volume req'd	0	0	68	81	NA	NA
- # of stops req'd	0	0	1	. 1	· NA	NA
- Pump out minutes	0.0	0.0	1.1	1.4	NÄ	NA
- Connect/Disc. minutes	0.0	0.0	<u>17.5</u>	<u>21.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	19	22	NA	NA
Average Cost Per Delay	\$0	\$0	\$11	\$13	NA	NA
Subtotal- Oprtng Trip Related	\$25	\$73	\$53	\$64	NA	NA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	7,884	14,892	10,512	19,929	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Opring Trip Related per Car	\$1,827	\$5,338	\$3,892	\$4,642	NA	NA
Annual Non-Trip Related per Car	\$2,434	\$7,302	\$3,043	\$3,651	NA	NA
Annual Oprtng Trip Related per Car Type	\$65,758	\$362,989	\$186,825	\$422,425	NA	NA
Annual Non-Trip Related per Car Type	<u>\$87,624</u>	<u>\$496,536</u>	<u>\$146,040</u>	<u>\$332,241</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$4,261	\$12,640	\$6,935	\$8,293	NA	NA
Total CAPITAL COST per Car	\$14,152	\$42,456	\$17,690	\$21,228	NA	NA
Total OPRTNG COST for all cars	\$153,382	\$859,525	\$332,865	\$754,666	NA NA	NA
Total CAPITAL COST for all cars	\$509,472	\$2,887,008	\$849,120	\$1,931,748	NA NA	NA

Amtrak Route: Origin/Destination:	California Zephyr Chicago-Oakland	•	Route Number:	#5-6		
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1	٥				
Manufacturer: Equipment:	Microphor					
	Gravity					
Scenario:	Favorable					
* All data on per car basis (unless noted	•					
	39900 <u>Trans Dorm Coach</u>	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	NA <u>NA</u>
Quantity of save	1	3				
Quantity of cars Capacity (# people) - seated	40	3 44	3 78	5 75	NA NA	NA NA
Toilets per car	40	12	5	6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
			,			
Car Waste Data (per car)						
Pleat W. A		•			•	
Black Water:	47.00	4. 70				***
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA 2.52	ŇA
# Flushes/Person-day	6.00	6.00	6.00 1	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	41.3	45.4	. 80.5	77.4	NA	NA
Capacity Req'd/day (gals)	59.2	65.2	115.5	111.1	NA	NA
Adj. Capacity Req'd w/ Buffer	74.1	81.5	144.4	138.8	NA	NA
Tank Capacity per Car (gals)	300	300	300	· 300	300	300
•						
Continuous Service Hours Supported As a percentage of 72 hours	97 135%	88 123%	50 69%	52 72%	NA NA .	NA NA
Probable Service Hours per Day	24	24	24	24	. 24	24
Service Days Supported	4.1	3.7	2,1	2.2	NA	NA NA
As a percentage of 3 days	135.04%	122.77%	69.25%	72.02%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	0.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$20,000	\$60,000	\$25,000	\$30,000	NA.	<u>NA</u>
- Total Equip Cost	\$30,000	\$70,000	\$35,000	\$40,000	NA NA	NA NA
Equipment Installation			•	-		
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$1,152</u>	\$3,456	<u>\$1,440</u>	\$1,728	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$4,032	\$2,016	\$2,304	NA	NA
Total Capital Cost	\$31,728	\$74,032	\$37,016	\$42,304	NA	NA

California Zephyr

Chicago-Oakland

Origin/Destination: Length in Miles:

2,422

Length in Hours:

51.17

Expected Trips per Day:

Manufacturer: Equipment:

Microphor Gravity

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	39900	32000	31000	34000	NA	NA
OPERATING COSTS	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	NA	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	2	2	2	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$576	\$1,728	\$720	\$864	NA NA	NA
Annual spare parts cost per yr	\$300	\$700	<u>\$350</u>	\$400	<u>NA</u>	NA
Total- Opring Non-Trip Related	\$876	\$2,428	\$1,070	\$1,264	NA NA	NA
Trip Related Costs:					•	
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	* \$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.59	\$0.65	\$0.00	\$1.11	NA	ŇA
- Pump out minutes	0.99	1.09	0.00	1.85	NA NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$2,15	<u>\$2.36</u>	<u>\$4.19</u>	<u>\$4.03</u>	<u>NA</u>	NA.
Subtotal- End of Day/Trip Srvc	\$26.74	\$75.01	\$34.19	\$41.14	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	300	0	NA	NA
- # of stops req'd	0	0	1	0	NA	NA
- Pump out minutes	0.0	0.0	5.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	<u>0.0</u>	<u>NA</u>	. <u>NA</u>
- Total Time Delay(mins/car)	0	0	5	0	` NA	NA
Average Cost Per Delay	\$0	\$0	\$3	\$0	· NA	NA
Subtotal- Opring Trip Related	\$27	\$75	\$37	\$41	NA NA	NA.
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	7,884	14,892	10,512	19,929	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Oprtng Trip Related per Car	\$1,952	\$5,476	\$2,715	\$3,003	· NA	NA
Annual Non-Trip Related per Car	\$876	\$2,428	\$1,070	\$1,264	NA	NA
Annual Opring Trip Related per Car Type	\$70,272	\$372,367	\$130,303	\$273,271	NA	NA
Annual Non-Trip Related per Car Type	<u>\$31,536</u>	<u>\$165,104</u>	<u>\$51,360</u>	<u>\$1,15,024</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,828	3 \$7,904	\$3,785	\$4,267	· NA	NA
Total CAPITAL COST per Car	\$31,728	\$74,032	\$37,016	\$42,304	NA	NA
Total OPRTNG COST for all cars	\$101,808	\$537,471	\$181,663	\$388,295	NA	NA
Total CAPITAL COST for all cars	\$1,142,208	\$5,034,176	\$1,776,768	\$3,849,664	NA	NA

Route Number:

#5-6

California Zephyr Chicago-Oakland

Route Number:

#5-6

Length in Miles:

2,422

Length in Hours: Expected Trips per Day: 51.17

Manufacturer: Equipment: Evac Ultimate

Scenario:

Favorable

	i avoiable					
* All data on per car basis (unless noted	fotherwise)					
	39900	32000	31000	34000	- NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated	40	44	78	75	NA	NA
Toilets per car	4	12		6	NA	NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)						
Black Water:						•
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	. 6.00	6.00	6.00
Flush efficiency adjustment	1.00	1,00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	11.3	12.4	22.0	21.2	ŅA	NA
Capacity Req'd/day (gals)	29.2	32.2	57.0	54.8	NA	NA
Adj. Capacity Req'd w/ Buffer	36.6	40.2	71.3	68.5	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	131 182%	119 166%	67 % 94%	70 97%	NA NA	NA NA
Probable Service Hours per Day	24	- 24	24	24	24	24
Service Days Supported	5.5	5.0	2.8	2.9	NA	NA
As a percentage of 3 days	182.40%	165.82%		97.28%	NA	NA
Consecutive Trips before pumpout	2.0	2.0	1.0	1.0	NA	· NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$14,500</u>	<u>\$17,400</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$23,600	\$46,800	\$26,500	\$29,400	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	. \$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1.440</u>	\$1,728	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$4,896	\$2,880	\$3,168	NA	NA
Total Capital Cost	\$26,192	\$51,696	\$29,380	\$32,568	NA	NA

Amtrak Route: California Zephyr Route Number:

Origin/Destination: Chicago-Oakland Length in Miles: 2,422 51.17 Length in Hours: Expected Trips per Day: 1

Manufacturer: Evac Equipment: Ultimate

Scenario:	Favorable					
* All data on per car basis (unless noted of	otherwise)					
	39900 Trans Dorm Coach	32000 Stooper Super	31000 Bag Coach Super	34000 Coach Super	, NA NA	NA <u>NA</u>
OPERATING COSTS	Trais Donit Coacii	gleebel Subel	Bay Coacii Super	Coacii Supei	13/4	· 1312
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>2</u>	2	<u>2</u>	· <u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$5 <b>7</b> 6	\$1,728	\$720	\$864	NA	NA
Annual spare parts cost per yr	<u>\$236</u>	\$468	<u>\$265</u>	\$2 <u>94</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$812	\$2,196	\$985	\$1,158	NA NA	NA
			•			
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.29	\$0.32	\$0.57	\$0.55	NA	NA
- Pump out minutes	0.49	0.54	0.95	0.91	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$1.06	\$1.17	\$2.07	\$1.99	NA NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	, \$25.35	\$73.49	\$32.64	\$38.54	NA NA	- NA
Train Delay:	, 420.00	<b>4</b> 75115	<b>402.0</b> .	<b>400.0</b> (		
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops req'd	0	0.	0	0	NA NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Connect/Disc, minutes	0.0	0.0	<u>0.0</u>	0.0	NA.	NA.
- Total Time Delay(mins/car)	0	<u>9.9</u> 0	. 0	<u>9.9</u> 0	NA NA	NA NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA NA	NA NA
Subtotal- Opring Trip Related	\$25	\$73	\$33	\$39	NA NA	NA NA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	7,884	14,892	10,512	19,929	NA	NA
Days per Trip (min. of 1)	3	3	3	3	3	. <u>3</u>
Annual Oprtng Trip Related per Car	\$1,851	\$5,365	\$2,382	\$2,813	NA	· NA
Annual Non-Trip Related per Car	\$812	\$2,196	\$985	\$1,158	NA	NA
Annual Oprtng Trip Related per Car Type	\$66,626	\$364,792	\$114,359	\$255,991	NA	NA
Annual Non-Trip Related per Car Type	\$29,232	<u>\$149,328</u>	\$47,280	<u>\$105,378</u>	<u>NA</u>	. <u>NA</u>
Total OPRTNG COST per Car	\$2,663	\$7,561	\$3,367	\$3,971	NA	NA
Total CAPITAL COST per Car	\$26,192	\$51,696	\$29,380	\$32,568	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$95,858 \$942,912	\$514,120 \$3,515,328	\$161,639 \$1,410,240	\$361,369 \$2,963,688	NA NA	NA NA

Amtrak Route: Origin/Destination: Length in Miles:

Length in Hours:

California Zephyr Chicago-Oakland

2,422

51.17

1

Route Number:

#5-6

Expected Trips per Day:

Manufacturer:
Equipment:

Railtech

WTS 8300

Scenario: Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	otherwise)			•		
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated	40	44	78	75	NA	NA
Toilets per car	. 4	12	. 5	6	NA	NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)					,	÷
Black Water:		•				
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	. 6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	63.2	69.5	123.2	118.4	NA	NA
Capacity Req'd/day (gals)	81.1	89.2	158.2	152.1	NA	NA
Adj. Capacity Req'd w/ Buffer	101.4	111.5	197.7	190.1	NA	NA
Tank Capacity per Car (gals)	100	300	150	150	· NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	24 33%	65 90%	18 6 25%	19 26%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.0	2.7	0.8	0.8	NA	NA
As a percentage of 3 days	32.87%	89.66%	<b>25.29%</b>	26.30%	NA	NA
Consecutive Trips before pumpout	0.0	1.0	0.0	0.0	NA	NA
CAPITAL COSTS	•					
Collection System per Car	\$8,000	\$24,000	\$12,000	\$12,000	NA	NA
Toilet Cost per Car	\$12,000	\$36,000	<u>\$15,000</u>	\$18,000	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$60,000	\$27,000	\$30,000	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$1,728	\$864	\$864	NA	NA
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1,440</u>	<u>\$1.728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$5,184	\$2,304	\$2,592	NA	NA
Total Capital Cost	\$21,728	\$65,184	\$29,304	\$32,592	NA NA	NA NA

Amtrak Route:	California Zephyr		Route Number:	#5-6		•
Origin/Destination:	Chicago-Oakland					
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Railtech					
Equipment:	WTS 8300		*	2		
Scenario:	Favorabio					
* All data on per car basis (unless noted ot	herwise)					
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:	•					
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	. <u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$576	\$1,728	\$720	\$864	NA NA	NA
Annual spare parts cost per yr	<u>\$200</u>	\$600	\$270	\$300	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$776	\$2,328	\$990	\$1,164		NA NA
Trip Polotod Costo			•			
Trip Related Costs: Toilet maintenance enroute	•			٠		
End of Day/Trip Servicing						
- Cleaning	\$24	. \$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal				•		
- Pump out Cost	\$4.20	\$0.89	\$6.38	\$6.32	NA	NA
- Pump out minutes	0.00	1.49	0.14	0.03	NA NA	NA.
<ul> <li>Connect/Disc. minutes</li> </ul>	7.0	0.0	10.5	10.5	NA	NA
- Waste Disposal	<u>\$2.94</u>	\$3.23	\$5.73	<u>\$5.51</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc Train Delay:	\$31.14	\$76.13	\$42.12	\$47.83	NA.	NA .
- Pump out volume req'd	100	0	150	150	NA	NA
- # of stops req'd	1	0	1	1	NA NA	NA
- Pump out minutes	1.7	0.0	2.5	2.5	NA	NA
- Connect/Disc. minutes	<u>7.0</u>	0.0	10.5	10.5	NA NA	NA
- Total Time Delay(mins/car)	9	0	13	13	NA	NA
Average Cost Per Delay	\$5	\$0	\$8	\$8	NA NA	NA NA
Subtotal-Opring Trip Related	\$36	\$76	\$50	.\$56	NA NA	NA NA
Sublotal Opting Trip Helated	ψ30	\$70	\$30	.\$30	IVA	INA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	7,884	14,892	10,512	19,929	NA	NA
Days per Trip (min. of 1)	3	3	3	3	<u>3</u>	3
Daya par 11.p (IIIIII of 17	Ū	₹	₹	₹	×	2
Annual Opring Trip Related per Car	\$2,653	\$5,557	\$3,644	\$4,061	NA	NA
Annual Non-Trip Related per Car	\$776	\$2,328	\$990	\$1,164	NA	NA
Annual Oprtng Trip Related per Car Type	\$95,502	\$377,892	\$174,902	\$369,575	· NA	NA
Annual Non-Trip Related per Car Type	\$27,936	<u>\$158,304</u>	\$47,520	\$105,924	<u>NA</u> ·	<u>NA</u>
Total OPRTNG COST per Car	\$3,429	\$7,885	\$4,634	\$5,225	NA	. NA
Total CAPITAL COST per Car	\$21,728	\$65,184	\$29,304	\$32,592	, NA	NA
Total OPRTNG COST for all cars	\$123,438	\$536,196	\$222,422	\$475,499	NA	. NA
Total CAPITAL COST for all cars	\$782,208	\$4,432,512	\$1,406,592	\$2,965,872	<ul> <li>34.1 Aug 41.1 Biological at 175,000,000.</li> </ul>	NA
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C3.3 City of New Orleans, New Orleans-Chicago

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago

Length in Hours:

924

Expected Trips per Day:

18.33 1

Manufacturer: Equipment:

Monogram

Modified Vacuum

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted otherwise)							
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	
Quantity of cars	1	4	1	1	1	1	
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17	
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3	
Car Waste Data (per car)							
Black Water:							
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88	
# Flushes/Person-day	6.00	6.00	. 6.00	6.00	6.00	6.00	
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. # Flushes/Person-day	6	6	6	6	6	6	
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063	
Flush Fluids/day (gals)	31.0	18.1	16.6	17.4	18.5	8.3	
Capacity Req'd/day (gals)	51.8	30.3	27.8	29.1	30.9	13.9	
Adj. Capacity Req'd w/ Buffer	64.7	37.9	34.7	36.3	38.7	17.4	
Tank Capacity per Car (gals)	235	235	235	235	235	235	
Continuous Service Hours Supported As a percentage of 72 hours	87 121%	149 207%	162 225%	155 216%	146 202%	325 451%	
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33	
Service Days Supported	4.8	8.1	8.9	8.5	8.0	17.7	
As a percentage of 3 days	158.42%	270.64%	295.24%	282.40%	265.11%	590.48%	
Consecutive Trips before pumpout	4.0	8.0	8.0	8.0	7.0	17.0	
CAPITAL COSTS						-	
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$7,500</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>	
- Total Equip Cost	\$26,000	\$26,000	\$28,500	\$26,000	\$26,000	\$63,500	
Equipment Installation							
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336	
Total Capital Cost	. \$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836	

Route Number:

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

924

Length in Hours: Expected Trips per Day: 18.33

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

All data on per dai basis (dilless noted on	54000 Horizon	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 <u>Dome Coach</u>	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS  Non-Trip Related Costs:				·		<del></del>
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	2	<u>2</u>	2
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	<u>\$260</u>	<u>\$260</u>	· <u>\$285</u>	<u>\$260</u>	<u>\$260</u>	<u>\$635</u>
Total- Oprtng Non-Trip Related	\$548	\$548	\$717	\$548	\$548	\$3,083
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						,
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.52	\$0.30	\$0.28	\$0.29	\$0.31	\$0.14
- Pump out minutes	0.86	0.51	0.46	0.48	0.52	0.23
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.88</u>	<u>\$0.52</u>	<u>\$0.47</u>	<u>\$0.49</u>	<u>\$0.53</u>	<u>\$0.24</u>
Subtotal- End of Day/Trip Srvc	\$13.40	\$12.82	\$18.75	\$12.78	\$12.84	\$102.38
Train Delay:		•				
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	0	0
- # of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	.0.0	0.0	0.0	0.0
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$13	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	.17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$2,934	\$2,807	\$4,106	\$2,800	\$2,811	\$22,420
Annual Non-Trip Related per Car	\$548	\$548	\$717	\$548 <sup>-</sup>	\$548	\$3,083
Annual Oprtng Trip Related per Car Type	\$302,228	\$218,967	\$86,233	\$33,598	\$70,275	\$1,838,454
Annual Non-Trip Related per Car Type	<u>\$56,444</u>	<u>\$42,744</u>	<u>\$15,057</u>	<u>\$6,576</u>	<u>\$13,700</u>	<u>\$252,806</u>
Total OPRTNG COST per Car	\$3,482	\$3,355	\$4,823	\$3,348	\$3,359	\$25,503
Total CAPITAL COST per Car	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$358,672 \$2,885,648	\$261,711 \$2,185,248	\$101,290 \$646,884	\$40,174 \$336,192	\$83,975 \$700,400	\$2,091,260 \$5,726,552

City of New Orleans

Origin/Destination:

New Orleans-Chicago

Length in Miles: Length in Hours:

924 18.33

Expected Trips per Day:

1

Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	, · · 1	4	1	1	1	1
Capacity (# people) - seated	82	48	. 44	46	49	22
Toilets per car	2	2	3	. 2	2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Req'd/day (gals)	28.1	16.5	15.1	15.8	16.8	7.5
Adj. Capacity Req'd w/ Buffer	35.1	20.6	18.9	.19.7	21.0	9.4
Tank Capacity per Car (gals)	27	27 ·	40.5	27	27	229.5
Continuous Service Hours Supported As a percentage of 72 hours	18 26%	31 44%	52 72%	33 . 46%	31 43%	584 811%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	1.0	1.7	2.8	1.8	1.7	31.9
As a percentage of 3 days	33.53%	57.27%	93.72%	59.76%	56.10%	1062.14%
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	1.0	· 31.0
CAPITAL COSTS						
Collection System per Car	\$0	. \$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$9,750</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>
- Total Equip Cost	\$6,500	\$6,500	\$9,750	\$6,500	\$6,500	\$55,250
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$576	\$576	\$864	\$576	\$576	\$4,896
Total Capital Cost	.\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146

Route Number:

City of New Orleans

New Orleans-Chicago

924

1 -

Length in Miles: Length in Hours:

18.33

Expected Trips per Day:

Manufacturer: Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

•	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amiounge II	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:	170112011	<del></del>	<u> </u>			<u> </u>
Labor cost/major servicing	\$576	\$576	\$864	\$576	\$576	\$4,896
Frequency per Year	<u>2</u>	<del>2</del>	2	2	2	44,030 <u>2</u>
Servicing Cost/Year	\$1,152	\$1,152	\$1,728	\$1,152	\$1,152	\$9,792
Annual spare parts cost per yr	\$65	\$65	\$9 <u>8</u>	\$65	\$65	\$55 <u>3</u>
Total- Opring Non-Trip Related	\$1,21 <b>7</b>	\$1,217	\$1,826	\$1,217	\$1,217	\$10,345
total- opting Non-mp holated	Ψ1,217	Ψ1,217	Ψ1,020	Ψ1,217	Ψ1,217	Ψ10,0 <del>10</del>
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing			,			
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.28	\$0.16	\$0.15	\$0.16	\$0.17	\$0.08
- Pump out minutes	0.47	0.27	0.25	0.26	0.28	0.13
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	\$0.62	\$0.36	\$0.33	\$0.35	\$0.37	\$0.17
Subtotal- End of Day/Trip Srvc	\$12.90	\$12.53	\$18.48	\$12.50	\$12.54	\$102.24
Train Delay:	•	<b>V</b> .—	******		*	
- Pump out volume reg'd	0	Ó	0.	0	0	0
- # of stops req'd	0	ō	. 0	0	0	Ö
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Total Time Delay(mins/car)	0	0	0	0		0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Opring Trip Related	\$13	\$13	\$18	\$13	\$13	\$102
- capital opining in priorition						Ψ10 <u>2</u>
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$2,825	\$2,743	\$4,048	\$2,739	\$2,746	\$22,391
Annual Non-Trip Related per Car	\$1,217	\$1,217	\$1,826	\$1,217	\$1,217	\$10,345
Annual Opring Trip Related per Car Type	\$290,982	\$213,982	\$85,003	\$32,863	\$68,644	\$1,836,051
Annual Non-Trip Related per Car Type	<u>\$125,351</u>	<u>\$94,926</u>	<u>\$38,336</u>	<u>\$14,604</u>	<u>\$30,425</u>	<u>\$848,249</u>
Total OPRTNG COST per Car	\$4,042	\$3,960	\$5,873	\$3,956	\$3,963	\$32,735
Total CAPITAL COST per Car	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$416,333 \$728,828	\$308,908 \$551,928	\$123,338 \$222,894	\$47,467 \$84,912	\$99,069 \$176,900	\$2,684,300 \$4,931,972

Route Number:

City of New Orleans

New Orleans-Chicago

Origin/Destination:

Length in Miles: Length in Hours: 924

Expected Trips per Day:

18.33

Manufacturer:

Equipment:

Microphor

Gravity

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted o	•					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated	82	48	44	46	49	22
Toilets per car	2	2	3	2	2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:				•		
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	84.6	49.5	45.4	47.5	50.6	22.7
Capacity Req'd/day (gals)	92.8	54.3	49.8	52.0	55.4	24.9
Adj. Capacity Req'd w/ Buffer	115.9	67.9	62.2	65.0	69.3	31.1
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	62 86%	106 147%	116 161%	111 154%	104 144%	231 321%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	3.4	5.8	6.3	6.0	5.7	12.6
As a percentage of 3 days	112.93%	192.93%	210.46%	201.31%	<sup>2</sup> 188.99%	420.93%
Consecutive Trips before pumpout	3.0	5.0	6.0	6.0	- 5.0	12.0
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$10,000	\$10,000	<u>\$15,000</u>	\$10,000	<u>\$10,000</u>	<u>\$85,000</u>
- Total Equip Cost	\$20,000	\$20,000	\$25,000	\$20,000	\$20,000	\$95,000
Equipment Installation						
Collection System per Car	\$576	. \$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$5,472
Total Capital Cost	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472
		1 1		-		

#58

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago

Length in Hours:

924 18.33

Expected Trips per Day:

Manufacturer: Equipment:

Microphor

Gravity

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted of	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:		<del></del>				
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	2	<u>2</u> '	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	<u>\$200</u>	\$200	<u>\$250</u>	<u>\$200</u>	<u>\$200</u>	<u>\$950</u>
Total- Oprtng Non-Trip Related	\$488	\$488	\$682	\$488	\$488	\$3,398
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	. \$0	\$0
Pump out and Disposal					•	•
- Pump out Cost	\$0.93	\$0.54	\$0.50	\$0.52	\$0.55	\$0.25
- Pump out minutes	1.55	0.90	0.83	0.87	0.92	0.41
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$1.58</u>	<u>\$0.92</u>	\$0.85	<u>\$0.88</u>	<u>\$0.94</u>	<u>\$0.42</u>
Subtotal- End of Day/Trip Srvc	\$14.50	\$13.47	\$19.34	\$13.40	\$13.50	\$102.67
Train Delay:				v		
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	0	0
- # of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$15	\$13	\$19	\$13	\$13	\$103
Total # Cars in fleet	103 -	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	, 1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,176	\$2,949	\$4,236	\$2,936	\$2,956	\$22,485
Annual Non-Trip Related per Car	\$488	\$488	\$682	\$488	\$488	\$3,398
Annual Oprtng Trip Related per Car Type	\$327,173	\$230,025	\$88,962	\$35,228	\$73,893	\$1,843,782
Annual Non-Trip Related per Car Type	<u>\$50,264</u>	<u>\$38,064</u>	\$14,322	<u>\$5,856</u>	<u>\$12,200</u>	<u>\$278,636</u>
Total OPRTNG COST per Car	\$3,664	\$3,437	\$4,918	\$3,424	\$3,444	\$25,883
Total CAPITAL COST per Car	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$377,437 \$2,178,656	\$268,089 \$1,649,856	\$103,284 \$555,240	\$41,084 \$253,824	\$86,093 \$528,800	\$2,122,418 \$8,238,704

Route Number:

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

Length in Hours:

924

Expected Trips per Day:

18.33

Manufacturer:

Equipment:

Evac Ultimate

Scenario:

Favorable

* All data on per car basis (unless noted o		4000	4000	0.400		0.400(00)
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	<sup>°</sup> 82 2	. 48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	23.1	13.5	12.4	13.0	13.8	6.2
Capacity Req'd/day (gals)	45.8	26.8	24.6	25.7	27.4	12.3
Adj. Capacity Req'd w/ Buffer	57.2	33.5	30.7	32.1	34.2	15.4
Tank Capacity per Car (gals)	. 200	200	200	200	200	200
Continuous Service Hours Supported . As a percentage of 72 hours	84 116%	143 199%	156 217%	150 208%	140 195%	313 434%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	4.6	7.8	8.5	8.2	7.7	17.1
As a percentage of 3 days	152.53%	260.58%	284.27%	271.91%	255.26%	568.53%
Consecutive Trips before pumpout	4.0	· 7.0	8.0	8.0	7.0	17.0
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$8,700</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>
- Total Equip Cost	\$17,800	\$17,800	\$20,700	\$17,800	\$17,800	\$61,300
Equipment Installation				•	•	
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	• <u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636

#58

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

924

Length in Hours:

18.33

Expected Trips per Day: Manufacturer:

Equipment:

Evac Ultimate

Favorable

Scenario: \* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted otl	nerwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS						
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	2	2	2	2	2	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	<u>\$178</u>	<u>\$178</u>	<u>\$207</u>	\$178	<u>\$178</u>	<u>\$613</u>
Total- Oprtng Non-Trip Related	\$466	\$466	\$639	\$466	\$466	\$3,061
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing			***			A
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.46	\$0.27	\$0.25	\$0.26	\$0.27	\$0.12
- Pump out minutes	0.76	0.45	0.41	0.43	0.46	0.20
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.78</u>	<u>\$0.46</u>	<u>\$0.42</u>	<u>\$0.44</u>	<u>\$0.47</u>	<u>\$0.21</u>
Subtotal- End of Day/Trip Srvc	\$13.24	\$12.72	\$18.66	\$12.69	\$12.74	\$102.33
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	0
- # of stops req'd	0	. 0	0	0	. 0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	, 0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	.\$0	\$0
Subtotal- Opring Trip Related	\$13	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	. 103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	1	1	1	, <b>1</b>	1	1
Annual Oprtng Trip Related per Car	\$2,899	\$2,786	\$4,087	\$2,780	\$2,790	\$22,411
Annual Non-Trip Related per Car	\$466	\$466	\$639	· \$466	\$466	\$3,061
Annual Oprtng Trip Related per Car Type	\$298,566	\$217,344	\$85,832	\$33,358	\$69,744	\$1,837,671
Annual Non-Trip Related per Car Type	<u>\$47,998</u>	<u>\$36,348</u>	<u>\$13,419</u>	<u>\$5.592</u>	<u>\$11,650</u>	\$251,002
Total OPRTNG COST per Car	\$3,365	\$3,252	\$4,726	\$3,246	\$3,256	\$25,472
Total CAPITAL COST per Car	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636
Total OPRTNG COST for all cars	\$346,564	\$253,692	\$99,251	\$38,950	\$81,394	\$2,088,673
Total CAPITAL COST for all cars	\$2,041,048	\$1,545,648	\$483,084	\$237,792	\$495,400	\$5,546,152

#58

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago

Length in Hours:

924 18.33 1

Expected Trips per Day: Manufacturer:

Equipment:

Railtech

WTS 8300

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	otherwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	. 6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	· 6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	129.5	75.8	69.5	72.6	77.4	34.7
Capacity Req'd/day (gals)	127.0	74.3	68.1	71.2	75.9	34.1
Adj. Capacity Req'd w/ Buffer	158.8	92.9	85.2	89.1	94.9	42.6
Tank Capacity per Car (gals)	100	100	100	100	100	450
Continuous Service Hours Supported As a percentage of 72 hours	15 21%	26 36%	28 39%	27 37%	25 35%	254 352%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	0.8	1.4	1.5	1.5	1.4	13.8
As a percentage of 3 days	27.49%	46.96%	51.23%	49.01%	46.01%	461.10%
Consecutive Trips before pumpout	0.0	1.0	1.0	1.0	1.0	13.0
CAPITAL COSTS		•		•		•
Collection System per Car	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$36,000
Toilet Cost per Car	<u>\$6,000</u>	\$6,000	\$9,000	\$6,000	\$6,000	\$51,000
- Total Equip Cost	\$14,000	\$14,000	\$17,000	\$14,000	\$14,000	\$87,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$2,592
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	\$4,896
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$7,488
Total Capital Cost	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488
			<u> </u>	<u></u>		

Route Number:

City of New Orleans

New Orleans-Chicago

924

1

Length in Miles: Length in Hours:

18.33

Expected Trips per Day:

Manufacturer: Equipment:

Railtech WTS 8300

Scenario:

Favorable

* All data on per car basis (unless noted oth	nerwise)					
	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS		-				
Non-Trip Related Costs:				*		
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	. <u>2</u>	2	<u>2</u>	<u>2</u>	2	<u> 2</u>
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	<u>\$140</u>	<u>\$140</u>	<u>\$170</u>	<u>\$140</u>	<u>\$140</u>	<u>\$870</u>
Total- Oprtng Non-Trip Related	\$428	\$428	\$602	\$428	\$428	\$3,318
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	<b>\$</b> O
Pump out and Disposal	•					
- Pump out Cost	\$4.47	\$0.74	\$0.68	\$0.71	\$0.76	\$0.34
- Pump out minutes	0.45	1.24	1.14	. 1.19	1.26	0.57
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$2.16</u>	<u>\$1.26</u>	<u>\$1.16</u>	<u>\$1.21</u>	<u>\$1.29</u>	<u>\$0.58</u>
Subtotal- End of Day/Trip Srvc	\$18.63	\$14.01	\$19.84	\$13.92	\$14.05	\$102.92
Train Detay:						
<ul> <li>Pump out volume req'd</li> </ul>	100	0	0	0	0	0
- # of stops req'd	1	0	0	0	Ò	0
- Pump out minutes	1.7	0,0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>7.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	0.0	<u>0.0</u>
- Total Time Delay(mins/car)	9	0	0	0	0	0
Average Cost Per Delay	\$5	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$24	\$14	\$20	\$14	\$14	\$103
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	1	<u>1</u>	1	_ 1	1	. 1
Annual Oprtng Trip Related per Car	\$5,219	\$3,068	\$4,345	\$3,049	\$3,077	\$22,539
Annual Non-Trip Related per Car	\$428	\$428	\$602	\$428	\$428	\$3,318
Annual Oprtng Trip Related per Car Type	\$537,514	\$239,273	\$91,244	\$36,591	\$76,919	\$1,848,238
Annual Non-Trip Related per Car Type	<u>\$44,084</u>	\$33,384	\$12,642	<u>\$5,136</u>	\$10,700	\$272,076
Total OPRTNG COST per Car	\$5,647	\$3,496	\$4,947	\$3,477	\$3,505	\$25,857
Total CAPITAL COST per Car	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$581,598 \$1,560,656	\$272,657 \$1,181,856	\$103,886 \$387,240	\$41,727 \$181,824	\$87,619 \$378,800	\$2,120,314 \$7,748,016

Route Number:

C3.4 Silver Meteor, New York-Tampa

Silver Meteor

Origin/Destination:

New York-Tampa

Length in Miles:

1,270

Length in Hours:

23.28 1

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

* All data on per car basis (unless noted of	therwise)				,	
, ,	25000 Amcoach II	28000 <u>Amiounge li</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 Viewliner-Sleeper	NA <u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)		v.				
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	. 1.00	1.00.	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	. 6	6	6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	22,3	18.5	8.3	15.1	12.9	NA
Capacity Req'd/day (gals)	47.3	39.3	17.6	32.1	27.3	NA
Adj. Capacity Req'd w/ Buller	59.2	49.1	22.1	40.1	34.1	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	95 132%	115 159%	256 355%	141 3 195%	165 230%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	. 4.1	4.9	11.0	6.0	7.1	NA
As a percentage of 3 days	136.50%	164.36%	366.07%	6 201.34%	236.87%	NA
Consecutive Trips before pumpout	4.0	4.0	10.0	6.0	7.0	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	\$42,500	\$80,000	\$42,500	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$63,500	\$101,000	\$63,500	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440 \$4,000	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	\$4,896	<u>\$9,216</u>	\$4,896 \$2,200	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	NA NA
Total Capital Cost	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	NA NA

Route Number:

#87-88

Length in Miles:

Length in Hours:

Silver Meteor

New York-Tampa

1,270

23.28

Expected Trips per Day:

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario: Favorable \* All data on per car basis (unless noted otherwise) 25000 28000 2400(30) NA Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper <u>NA</u> Amcoach II Amlounge II OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$1,224 \$2,304 \$1,224 NA Frequency per Year 2 2 2 2 <u>2</u> NA \$288 \$288 \$4,608 \$2,448 Servicing Cost/Year \$2,448 \$1,010 <u>\$635</u> <u>NA</u> Annual spare parts cost per yr \$260 \$260 <u>\$635</u> \$548 \$3,083 \$5,618 \$3,083 NA Total- Opring Non-Trip Related \$548 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$102 \$192 \$102 NA - Cleaning - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.47 \$0.39 \$0.18 \$0.32 \$0.27 NA 0.45 0.66 0.29 0.53 NA - Pump out minutes 0.79 0.0 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 - Waste Disposal \$0.46 <u>\$0.80</u> \$0.67 <u>\$0.30</u> <u>\$0.55</u> <u>NA</u> \$13.06 \$102.48 \$192.87 \$102.74 NA Subtotal- End of Day/Trip Srvc \$13.28 Train Delay: - Pump out volume reg'd 0 0 0 0 0 NA - # of stops req'd 0 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 <u>NA</u> - Total Time Delay(mins/car) 0 0 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 NA Subtotal-Opring Trip Related \$13 \$13 \$102 \$193 \$103 NA 2 NA Total # Cars in fleet 119 25 82 16 Total Annual Car-days 43,435 9,125 29,930 5,840 730 NA Adjusted Total Car-days 26,061 5,475 17,958 3,504 438 NA Days per Trip (min. of 1) 2 <u>2</u> <u>2</u> 2 2 <u>2</u> Annual Oprtng Trip Related per Car \$1,454 \$1,430 \$11,221 \$21,119 \$11,250 NA Annual Non-Trip Related per Car \$548 \$548 \$3,083 \$5,618 \$3,083 ΝA Annual Opring Trip Related per Car Type \$173,018 \$35,755 \$920,137 \$337,902 \$22,499 - NA Annual Non-Trip Related per Car Type \$65,212 \$13,700 \$252,806 \$89,888 \$6,166 <u>NA</u> Total OPRTNG COST per Car \$2,002 \$1,978 \$14,304 \$26,737 \$14,333 NA \$69,836 Total CAPITAL COST per Car \$28,016 \$111,656 \$28,016 \$69,836 NA

Route Number:

#87-88

\$49,455

\$700,400

\$1,172,943

\$5,726,552

\$427,790

\$1,786,496

\$28,665

\$139,672

\$238,230

\$3,333,904

NA

NA

Length in Miles:

Silver Meteor

New York-Tampa

1,270

Length in Hours:

23.28

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	otnerwise)					
	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 Viewliner-Sleeper	NA NA
Quantity of cars	7	1	2	1	1	NA NA
Capacity (# people) - seated Toilets per car	5 <del>9</del> 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)				•		
Black Water:					•	
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	NA
Capacity Req'd/day (gals)	25.7	21.3	9.6	17.4	14.8	NA
Adj. Capacity Req'd w/ Buffer	32.1	26.7	12.0	21.8	18.5	NA
Tank Capacity per Car (gals)	27	27	229.5	432	229.5	NA <sup>1</sup>
Continuous Service Hours Supported As a percentage of 72 hours	20 28%	24 34%	460 639%	476 661%	298 413%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.9	1.0	19.8	20.5	12.8	NA
As a percentage of 3 days	28.89%	34.78%	658.47%	681.71%	426.07%	NA
Consecutive Trips before pumpout	0.0	1.0	19.0	20.0	12.0	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	\$55,250	<u>\$104,000</u>	<u>\$55,250</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$55,250	\$104,000	\$55,250	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>	<u>\$9,216</u>	<u>\$4.896</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$4,896	\$9,216	\$4,896	NA
Total Capital Cost	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA

Route Number:

#87-88

Origin/Destination:

Length in Miles:

Length in Hours:

Expected Trips per Day:

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Silver Meteor

New York-Tampa

1,270

1

23.28

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise) 25000 28000 2400(30) 2080 2300 NA Amcoach II Amiounge II Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper NA **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$576 \$576 \$4,896 \$9,216 \$4,896 NA Frequency per Year 2 2 2 <u>2</u> Servicing Cost/Year \$1,152 \$1,152 \$9,792 \$18,432 \$9,792 NA NA Annual spare parts cost per yr <u>\$65</u> <u>\$65</u> \$553 \$1,040 <u>\$553</u> Total- Opring Non-Trip Related \$1,217 \$1,217 \$10,345 \$19,472 \$10,345 NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$102 - Cleaning \$12 \$12 \$102 \$192 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.10 - Pump out Cost \$4.20 \$0.21 \$0.17 \$0.15 NA - Pump out minutes 0.00 0.36 0.16 0.29 0.25 NA - Connect/Disc. minutes 7.0 0.0 0.0 0.0 0.0 NA - Waste Disposal \$0.57 \$0.47 \$0.21 \$0.38 \$0.33 <u>NA</u> Subtotal- End of Day/Trip Srvc \$16.77 \$12.68 \$102.31 \$192.56 \$102.47 NA Train Delay: - Pump out volume req'd 27 0 0 0 0 NA - # of stops req'd 1 0 0 0 0 NΑ - Pump out minutes 0.5 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes <u>7.0</u> 0.0 0.0 0.0 0.0 <u>NA</u> - Total Time Delay(mins/car) 7 0 0 0 0 NA Average Cost Per Delay \$4 \$0 \$0 \$0 \$0 NA Subtotal-Opring Trip Related \$21 \$13 \$102 \$193 \$102 NA Total # Cars in fleet 119 25 82 2 16 NA Total Annual Car-days 43,435 9,125 29,930 5.840 730 NA Adjusted Total Car-days 26,061 5,475 17,958 3,504 438 NA Days per Trip (min. of 1) 2 2 2 2 <u>2</u> <u>2</u> Annual Oprtng Trip Related per Car \$2,325 \$1,389 \$11,203 \$21,085 \$11,221 NA Annual Non-Trip Related per Car \$1,217 \$1,217 \$10,345 \$19,472 \$10,345 NA Annual Oprtng Trip Related per Car Type \$276,707 \$34,719 \$918,611 \$337,361 \$22,442 NA Annual Non-Trip Related per Car Type \$144,823 \$30,425 \$848,249 \$311,552 \$20,689 <u>NA</u> Total OPRTNG COST per Car \$3,542 \$2,606 \$21,547 \$40,557 \$21,565 NA Total CAPITAL COST per Car \$7,076 \$7,076 \$60,146 \$113,216 \$60,146 NA

Route Number:

#87-88

\$65,144

\$176,900

\$1,766,860

\$4,931,972

\$648,913

\$1,811,456

\$43,131

\$120,292

NA

NA

\$421,530

\$842,044

Silver Meteor

New York-Tampa

1,270

Length in Miles: Length in Hours:

23.28

Expected Trips per Day:

Microphor

Manufacturer: Equipment:

Gravity

Scenario:

Favorable

330112101						
* All data on per car basis (unless noted o	therwise)		•			
	25000	28000	2400(30)	2080	2300	NA
•	Amcoach II	Amlounge II	Sleeper 10-6	Slumbercoach 24-	Viewliner-Sleeper	<u>NA</u>
Quantity of cars	7	1	2	. 1	1	NA
Capacity (# people) - seated	59	49	22	40	34	NA
Toilets per car	2	. 2	17	32	17	NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA ·
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	60.9	50.6	22.7	41.3	35.1	NA
Capacity Req'd/day (gals)	84.8	70.4	31.6	57.5	48.8	NA
Adj. Capacity Req'd w/ Buffer	105.9	88.0	39.5	71.8	61,1	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	68 94%	82 114%	182 253%	100 139%	118 164%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	2.9	3.5	7.8	4.3	5.1	NA
As a percentage of 3 days	97.31%	117.16%	260.96%	143.53%	168.85%	NA
Consecutive Trips before pumpout	2.0	3.0	7.0	4.0	5.0	, NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$85,000</u>	<u>\$160,000</u>	<u>\$85,000</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$95,000	\$170,000	\$95,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per-Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$5,472	\$9,792	\$5,472	NA
Total Capital Cost	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA NA

Route Number:

#87-88

Silver Meteor

Route Number:

#87-88

Origin/Destination: Length in Miles:

New York-Tampa 1,270

Length in Hours:

23.28

Expected Trips per Day: Manufacturer:

Equipment:

Microphor Gravity

Scenario:

Favorable

* All data on per car basis (unless noted otherwise)							
•	25000 <u>Amcoach II</u>	28000 Amiounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 Viewliner-Sleeper	NA <u>NA</u>	
OPERATING COSTS Non-Trip Related Costs:						<del></del>	
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA	
Frequency per Year	2	2	<u>2</u>	<u>2</u>	<u>2</u>	2	
Servicing Cost/Year	\$288	\$288	\$2,448	\$4,608	\$2,448	NA NA	
Annual spare parts cost per yr	. \$200	\$200	\$950	\$1,700	\$950	NA	
Total- Opring Non-Trip Related	\$488	\$488	\$3,398	\$6,308	\$3,398	NA NA	
Trip Related Costs:							
Toilet maintenance enroute End of Day/Trip Servicing		•	,				
- Cleaning	\$12	\$12	\$102	\$192	\$102	'nΑ	
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0	
Pump out and Disposal						,	
- Pump out Cost	\$0.85	\$0.70	\$0.32	\$0.57	\$0.49	NA	
- Pump out minutes	1.41	1.17	0.53	0.96	0.81	NA:	
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	NA NA	
- Waste Disposal	\$1.44	\$1.20	\$0.54	\$0.98	\$0.83	NA NA	
Subtotal- End of Day/Trip Srvc	\$14.29	\$13.90	\$102.85	\$193.55	\$103.32	NA NA	
Train Delay:	¥17.25	<b>V</b> 10.00	\$10 <u>2</u> .00	<b>\$100.00</b>	¥100.02	147	
- Pump out volume reg'd	0	0	. 0	0	0	NA	
- # of stops req'd	0	0	. 0	Ö	Ö	NA NA	
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA NA	
- Connect/Disc, minutes	0.0 0.0	0:0 0:0	0.0	0.0 0.0	0.0 0.0		
- Total Time Delay(mins/car)	<u>0.0</u> 0	0.0	. <u>0.0</u>	<u>0.0</u> 0	<u>0.0</u> 0	<u>NA</u>	
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	NA NA	
	\$0 \$14	• -		• -		NA NA	
Subtotal- Opring Trip Related	\$14	\$14	\$103	\$194	\$103	NA NA	
Total # Cars in fleet	119	25	82	16	2	NA	
Total Annual Car-days	43,435	9,125	29,930	5,840	730	<b>NA</b>	
Adjusted Total Car-days	26,061	5,475	17,958	3,504	438	NA	
Days per Trip (min. of 1)	2	2	2	2	<u>2</u>	<u>2</u>	
Annual Opring Trip Related per Car	\$1,565	\$1,522	\$11,262	\$21,194	\$11,313	NA	
Annual Non-Trip Related per Car	\$488	. \$488	\$3,398	\$6,308	\$3,398	NA	
Annual Oprtng Trip Related per Car Type	\$186,186	\$38,053	\$923,520	\$339,102	\$22,627	NA	
Annual Non-Trip Related per Car Type	<u>\$58,072</u>	<u>\$12,200</u>	<u>\$278,636</u>	<u>\$100,928</u>	<u>\$6,796</u>	<u>NA</u>	
Total OPRTNG COST per Car	\$2,053	\$2,010	\$14,660	\$27,502	\$14,711	NA a	
Total CAPITAL COST per Car	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA	
Total OPRTNG COST for all cars	\$244,258	\$50,253	\$1,202,156	\$440,030	\$29,423	NA	
Total CAPITAL COST for all cars	\$2,517,088	\$528,800	\$8,238,704	\$2,876,672	\$200,944	NA	

Silver Meteor

Origin/Destination: Length in Miles:

New York-Tampa

Length in Hours:

1,270

Expected Trips per Day: Manufacturer:

23.28

Equipment:

Evac Ultimate

Scenario:

Favorable

* All data on per car basis (unless noted ot	herwise)					
	25000 Amcoach II	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	2080 Siumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA NA
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)			•			
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	-6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	16.6	13.8	6.2	11.3	9.6	NA
Capacity Req'd/day (gals)	41.8	34.7	15.6	28.4	24.1	NA
Adj. Capacity Req'd w/ Buffer	52.3	43.4	19.5	35.5	30.1	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	92 127%	111 154%	246 342%	135 188%	159 221%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	3.9	4.7	10.6	5.8	6.8	NA
As a percentage of 3 days	131.43%	158.25%	352.46%	193.86%	228.07%	NA
Consecutive Trips before pumpout	3.0	4.0	10.0	5.0	6.0	NA
CAPITAL COSTS		•		. *		
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<b>\$5,800</b>	<u>\$49,300</u>	<u>\$92,800</u>	<u>\$49,300</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$61,300	\$104,800	\$61,300	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4.896</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	NA
Total Capital Cost	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA

#87-88

Silver Meteor

New York-Tampa

1,270

1

Length in Miles: Length in Hours: Expected Trips per Day:

23.28

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Favorable

* All data on per car basis (unless noted ot	herwise)					
, <b></b> , , , ,	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA NA
OPERATING COSTS			<del></del>			
Non-Trip Related Costs:	4					
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	.2	2	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$2,448	\$4,608	\$2,448	NA
Annual spare parts cost per yr	<u>\$178</u>	<u>\$178</u>	<u>\$613</u>	<u>\$1,048</u>	<u>\$613</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$466	\$466	\$3,061	\$5,656	\$3,061	NA
Trip Related Costs:					,	
Toilet maintenance enroute End of Day/Trip Servicing		•				•
- Cleaning	\$12	\$12	\$102	\$192	\$102	` NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.42	\$0.35	\$0.16	\$0.28	\$0.24	NA
- Pump out minutes	0.70	0.58	0.26	0.47	0.40	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$0.71</u>	\$0.59	<u>\$0.27</u>	<u>\$0.48</u>	<u>\$0.41</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.13	\$12.94	\$102.42	\$192.77	\$102.65	NA
Train Delay:		•				
- Pump out volume req'd	0	0	0	0	0	NA
- # of stops req'd	0	0	0	0	0	NA
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	. 0	0	0	. 0	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	NA
Subtotal- Oprtng Trip Related	\$13	\$13	\$102	\$193	\$103	NA
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	26,061	5,475	17,958	3,504	438	NA
Days per Trip (min. of 1)	2	2	2	<u>2</u>	<u>2</u>	2
Annual Oprtng Trip Related per Car	\$1,438	\$1,417	\$11,215	\$21,108	\$11,240	NA
Annual Non-Trip Related per Car	\$466	\$466	\$3,061	\$5,656	\$3,061	NA
Annual Oprtng Trip Related per Car Type	\$171,085	\$35,418	\$919,640	\$337,726	\$22,481	NA
Annual Non-Trip Related per Car Type	<u>\$55,454</u>	<u>\$11,650</u>	\$251,002	<u>\$90,496</u>	<u>\$6,122</u>	<u>NA</u>
Total OPRTNG COST per Car	\$1,904	\$1,883	\$14,276	. \$26,764	\$14,301	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$226,539 \$2,358,104	\$47,068 \$495,400	\$1,170,642 \$5,546,152	\$428,222 \$1,847,296	\$28,603 \$135,272	NA NA

#87-88

Amtrak Route: Silver Meteor Route Number: #87-88 New York-Tampa Origin/Destination:

1

Length in Miles: 1,270 Length in Hours: 23.28 Expected Trips per Day:

Manufacturer: Railtech Equipment: WTS 8300 Scenario: Favorable

	, aretable					
* All data on per car basis (unless noted of	otherwise)				•	
	25000	28000	2400(30)	2080	2300	NA
	Amcoach II	Amlounge II	Sleeper 10-6	Siumbercoach 24-	<u>Viewliner-Sleeper</u>	<u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated	59	49	22	40	34	NA
Toilets per car	2	2	17	32	17	, NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	. NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	93.2	77.4	34.7	63.2	53.7	NA
Capacity Req'd/day (gals)	116.1	96.4	43.3	78.7	66.9	NA
Adj. Capacity Req'd w/ Buffer	145.1	120.5	54.1	98.4	83.6	NA
Tank Capacity per Car (gals)	100	100	450	800	450	NA
Continuous Service Hours Supported As a percentage of 72 hours	17 23%	20 28%	200 277%	195 271%	129 179%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.7	0.9	8.6	8.4	5.5	NA
As a percentage of 3 days	23.69%	28.52%	285.86%	279.51%	184.97%	NA
Consecutive Trips before pumpout	0.0	0.0	8.0	8.0	5.0	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$36,000	\$64,000	\$36,000	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	\$51,000	<u>\$96,000</u>	<u>\$51,000</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$87,000	\$160,000	\$87,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$2,592	\$4,608	\$2,592	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$7,488	\$13,824	\$7,488	NA
Total Capital Cost	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	NA

Amtrak Route: Silver Meteor

Route Number:

#87-88

Origin/Destination: Length in Miles: Length in Hours:

New York-Tampa 1,270.

23.28

Expected Trips per Day: Manufacturer:

Total CAPITAL COST for all cars

Railtech

Equipment: WTS 8300 Scenario: Favorable \* All data on per car basis (unless noted otherwise) 25000 28000 2300 2400(30) 2080 NA Amcoach II Amlounge II Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper <u>NA</u> **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$1,224 \$2,304 \$1,224 NA Frequency per Year 2 2 Servicing Cost/Year \$4,608 \$288 \$288 \$2,448 \$2,448 NA Annual spare parts cost per yr \$140 <u>\$140</u> \$870 \$1,600 \$870 <u>NA</u> Total- Opring Non-Trip Related \$428 \$428 \$3,318 \$6,208 \$3,318 NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$102 - Cleaning \$12 \$12 \$192 \$102 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.79 \$0.67 \$4.36 \$4.20 \$0.43 NA - Pump out minutes 0.27 0.00 0.72 1.31 1.11 NA - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 NA - Waste Disposal \$1.97 \$1.64 \$0.74 \$1.34 \$1.14 NA Subtotal- End of Day/Trip Srvc \$18.33 \$17.84 \$103.17 \$194.12 \$103.81 NA Train Delay: - Pump out volume req'd 100 100 0 0 0 NΑ - # of stops req'd 1 1 0 0 0 NA 0.0 - Pump out minutes 1.7 1.7 0.0 0.0 NA - Connect/Disc. minutes <u>7.0</u> <u>7.0</u> 0.0 0.0 0.0 <u>NA</u> - Total Time Delay(mins/car) 9 9 O 0 Ω NA Average Cost Per Delay \$5 \$5 \$0 \$0 \$0 NA Subtotal-Opring Trip Related \$24 \$23 \$103 \$194 \$104 NA Total # Cars in fleet 25 2 NA 119 82 16 Total Annual Car-days 43,435 9,125 29,930 5,840 730 NA Adjusted Total Car-days 26,061 5,475 17,958 3,504 438 NA Days per Trip (min. of 1) 2 2 2 2 2 2 Annual Oprtng Trip Related per Car \$2,577 \$2,523 \$11,297 \$21,257 \$11,367 NA Annual Non-Trip Related per Car \$428 \$428 \$3,318 \$6,208 \$3,318 NA Annual Opring Trip Related per Car Type \$306,655 \$63,068 \$926,350 \$340,106 \$22,733 NA Annual Non-Trip Related per Car Type \$50,932 \$10,700 \$272,076 \$6,636 \$99,328 <u>NA</u> Total OPRTNG COST per Car \$3,005 \$2,955 \$14,615 \$27,465 \$14,685 NA Total CAPITAL COST per Car \$15,152 \$15,152 \$94,488 \$173,824 \$94,488 NA Total OPRTNG COST for all cars \$29,369 \$357,587 \$73,768 \$1,198,426 \$439,434 NA

\$7,748,016

\$2,781,184

\$188,976

NA

\$378,800

\$1,803,088

C3.5 Benjamin Franklin, Boston-Philadelphia

Amtrak Route: Origin/Destination:	Benjamin Franklin Boston-Philadelphia		Route Number:	#193		
Length in Miles:	322					v
Length in Hours:	6.55 2					
Expected Trips per Day: Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Favorable					
* All data on per car basis (unless noted of	therwise)					
	20000 Amcafe	21000 Amcoach	20100 <u>Amclub</u>	NA NA	NA <u>NA</u>	NA NA
Quantity of cars	1	. 1	, з	NA:	NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	. 6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	20.0	31.8	15.5	NA	NA	, NA
Capacity Req'd/day (gals)	23.9	37.9	18.5	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	29.9	47.4	23.1	NA	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	189 262%	119 165%	244 339%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	14.4	9.1 -	18.6	NA	NA	NA
As a percentage of 3 days	479.88%	302.78%	620.34%	, NA	NA	NA
Consecutive Trips before pumpout	28.0	18.0	37.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car,	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	· <u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	· <u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	NA_	NA NA	NA NA

Benjamin Franklin

Origin/Destination:

Boston-Philadelphia

Length in Miles: Length in Hours: 322

6.55 2

Expected Trips per Day: Manufacturer:

Equipment:

Monogram

Modified Vacuum

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of						
•	20000 Amcafe	21000 <u>Amcoach</u>	20100 <u>Amclub</u>	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	· <u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$288	NA	NA	NA
Annual spare parts cost per yr	<u>\$260</u>	<u>\$260</u>	<u>\$260</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$548	\$548	\$548	NA NA	NA	NA .
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	. \$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.24	\$0.38	\$0.19	NA	NA	NA
- Pump out minutes	0.40	0.63	0.31	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$0.81</u>	<u>\$1.29</u>	<u>\$0.63</u>	' <u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.05	\$13.67	\$12.81	NA	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	NA	NA	NA
- # of stops req'd	. 0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA .	NA	NA
Average Cost Per Delay	<b>\$0</b> .	\$0	\$ <u>0</u>	NA	NA	NA
Subtotal- Oprtng Trip Related	\$13	\$14	\$13	NA	NA	NA NA
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	9,855	58,254	5,256	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$2,859	\$2,993	\$2,806	NA	NA	NA
Annual Non-Trip Related per Car	\$548	\$548	\$548	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$128,634	\$796,238	\$67,352	. NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$24,660</u>	<u>\$145,768</u>	<u>\$13.152</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,407	\$3,541	\$3,354	NA	NA	NA
Total CAPITAL COST per Car	\$28,016 <sup>-</sup>	\$28,016	\$28,016	NA	NA	NA
Total OPRTNG COST for all cars	\$153,294	\$942,006	\$80,504	NA	NA.	NA
Total CAPITAL COST for all cars	\$1,260,720	<b>\$7,</b> 452,256	\$672,384	NA NA	NA	NA

Route Number:

Amtrak Route: Origin/Destination: Length in Miles:	Benjamin Franklin Boston-Philadelphia 322		Route Number: #	193		•
Length in Hours:	6.55					•
Expected Trips per Day:	2					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc			•		
Scenario:	Favorable					
* All data on per car basis (unless noted of	therwise)			*	•	
	20000	21000	20100	NA	NA	- NA
	<u>Amcafe</u>	Amcoach	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA NA	NA NA	NA NA
Average persons/toller on trails	20.3	42.0	20.5	, , ,	147	1,77
Car Waste Data (per car)	,				•	
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	'NA'	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Capacity Req'd/day (gals)	13.0	20.6	10.0	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	16.2	25.7	12.6	NA	NA	ж <b>NA</b>
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	40 55%	25 35%	52 72%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	3.0	1.9	3.9	NA	NA	NA
As a percentage of 3 days	101.55%	64.07%	131.28%	NA	NA ·	NA
Consecutive Trips before pumpout	6.0	3.0	7.0	· NA.	· NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation	•					-
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$576	NA NA	. NA	NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA	NA NA	NA NA

Benjamin Franklin

Boston-Philadelphia

322

Length in Hours: Expected Trips per Day: 6.55 2

Manufacturer:

Length in Miles:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

•	20000 Amcafe	21000 Amcoach	20100 <u>Amclub</u>	NA NA	NA NA	N N
OPERATING COSTS	ranoaso	<u> </u>	- Intology	13/13	1111	
Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	N
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	2
Servicing Cost/Year	\$1,152	\$1,152	\$1,152	NA	NA	N
Annual spare parts cost per yr	<u>\$65</u>	<u>\$65</u>	<u>\$65</u>	- <u>NA</u>	<u>NA</u>	<u>N</u>
Total- Opring Non-Trip Related	\$1,217	\$1,217	\$1,217	NA	NA NA	N
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N.
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.13	\$0.21	\$0.10	NA	NA	N.
- Pump out minutes	0.22	0.34	0.17	NA	NA	N.
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	N.
- Waste Disposal	<u>\$0.57</u>	<u>\$0.91</u>	<u>\$0.44</u>	<u>NA</u>	<u>NA</u>	N
Subtotal- End of Day/Trip Srvc	\$12.70	\$13.11	\$12.54	NA	NA	N
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	N
- # of stops req'd	0	0	0	NA	NA	N.
- Pump out minutes	0.0	0.0	0.0	NA	NA	N
- Connect/Disc. minutes	0.0	<u>0.0</u>	0.0	<u>NA</u>	<u>NA</u>	<u>N</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	N.
Average Cost Per Delay	\$0	\$0	<b>\$</b> 0	NA	NA ·	N.
Subtotal- Oprtng Trip Related	\$13	\$13	\$13	NA	NA	N.
Total # Cars in fleet	45	266	24	NA	NA	N
Total Annual Car-days	16,425	97,090	8,760	NA	NA	N
Adjusted Total Car-days	9,855	58,254	5,256	NA	NA	N
Days per Trip (min. of 1)	1	1	1	<u>1</u>	1	1
Annual Oprtng Trip Related per Car	\$2,782	\$2,871	\$2,747	NA	NA	N
Annual Non-Trip Related per Car	\$1,217	\$1,217	\$1,217	NA	NA	N
Annual Oprtng Trip Related per Car Type	\$125,17 <u>2</u>	\$763,808	\$65,924	NA	NA	N
Annual Non-Trip Related per Car Type	<u>\$54,765</u>	<u>\$323,722</u>	\$29,208	<u>NA</u> .	<u>NA</u>	<u>N</u>
Total OPRTNG COST per Car	\$3,999	\$4,088	\$3,964	NA	NA	N
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	· NA	NA	N
Total OPRTNG COST for all cars	\$179,937	\$1,087,530	\$95,132	NÄ	NA	N.

Route Number:

<u></u>		•			*	
Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Microphor					
Equipment:	Gravity		1			*
Scenario:	Favorable	£				
* All data on per car basis (unless noted of	otherwise)					
•	20000	21000	20100	NA	NA	NA
	<u>Amcafe</u>	Amcoach	Amclub `	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA.	NA
Capacity (# people) - seated	53	84	41	NA	NA	, NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	26.5	42.0	20.5	·NA	NA	NA
				•	*	
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA.
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	54.7	86.7	42.3	NA	NA	· NA
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
Capacity Req'd/day (gals)	42.8	67.9	33.1	NA	. <b>NA</b>	NA
Adj. Capacity Req'd w/ Butter	53.6	84.9	41.4	. NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported	. 134	85	174	NA	NA	NA
As a percentage of 72 hours	187%	118%		NA	NA	NA
Bullette Cárán Hannana Ban	40.4	40.4	40.4	13.1	13.1	13.1
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
- Service Days Supported	10.3	6.5	13.3	NA	NA	NA
As a percentage of 3 days	342.09%	215.84%		NA	NA	NA
					نون	
Consecutive Trips before pumpout	20.0	12.0	26.0	, NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	\$576	<u>\$576</u>	\$576	NA	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA .	, NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA	NA	NA

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2				•	
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Favorable					
* All data on per car basis (unless noted						
, , , , , , , , , , , , , , , , , , ,	20000	21000	20100	NA	NA	NA
	Amcafe	Amcoach	Amclub	NA NA	<u>NA</u>	NA
OPERATING COSTS						
Non-Trip Related Costs:					·	
Labor cost/major servicing	\$144	\$144	<b>\$144</b>	NA	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$288	NA	NA	NA
Annual spare parts cost per yr	<u>\$200</u>	<u>\$200</u>	\$200	<u>NA</u>	<u>NA</u>	· NA
Total- Oprtng Non-Trip Related	\$488	\$488	\$488	NA NA	NA	NA.
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing	*					
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.43	\$0.68	\$0.33	· NA	. NA	NA
- Pump out minutes	0.71	1.13	0.55	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$1.46</u>	<u>\$2.31</u>	<u>\$1.13</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.89	\$14.99	\$13.46	NA	NA ,	NA
Train Delay:				•		
- Pump out volume req'd	0	0	. 0	NA	NA	NA
- # of stops req'd	0	0	. 0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	·NA	NA
Subtotal- Opring Trip Related	\$14	\$15	\$13	NA	NA	NA
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	· NA	NA
Adjusted Total Car-days	9,855	58,254	5,256	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,041	\$3,282	\$2,947	NA	NA	NA
Annual Non-Trip Related per Car	\$488	\$488	\$488	· NA	NA	NA NA
Annual Opring Trip Related per Car Type	s \$136,838	\$873,098	\$70,737	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$21,960</u>	\$129,808	\$11,712	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,529	\$3,770	\$3,435	NA	NA	NA
Total CAPITAL COST per Car	\$3,3 <u>2</u> 9 \$21,152			NA NA	· NA	NA NA
Total OAFTTAL COST per Car	\$21,152	\$21,152	\$21,152	INA	INA	NA

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours:	Benjamin Franklin Boston-Philadelphia 322 6.55		Route Number:	#193		
Expected Trips per Day:	2					
Manufacturer:	Evac				-	·
Equipment:	Ultimate		•			
Scenario:	Favorable					
* All data on per car basis (unless noted						
All date of por our basis (divess fields	20000	21000	20100	NA	ŇA	NA
	<u>Amcafe</u>	Amcoach	Amclub	<u>NA</u>	<u>NA</u>	NA NA
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated	53	84	41	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	26.5	42.0	20.5	· NA	NA	NA
Car Waste Data (per car)				•		
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	14.9	23.7	11.6	NA	NA	NA
Capacity Req'd/day (gals)	21.1	33.5	16.4	NA	NA	NA
Adj. Capacity Reg'd w/ Buffer	26.4	41.9	20.4	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	·-·· 200
Continuous Service Hours Supported As a percentage of 72 hours	182 252%	115 159%	235 326%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	13.9	8.7	17.9	NA	NA	NA
As a percentage of 3 days	462.05%	291.53%	597.28%	NA	NA	NA
Consecutive Trips before pumpout	27.0	17.0	. 35.0	NA	NA	NA
CAPITAL COSTS				•		
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$5,800	\$5,800	\$5,800	<u>NA</u>	<u>NA</u>	NA
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	` <u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA:	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	. NA	NA -	NA

Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 2 Expected Trips per Day: Manufacturer: Evac Ultimate Equipment: Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20000 21000 20100 NΑ NA <u>Amcafe</u> **Amcoach** <u>Amclub</u> <u>NA</u> NΑ NA **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$144 NA NA NΑ Frequency per Year 2 2 2 2 2 2 \$288 \$288 NA Servicing Cost/Year \$288 NA NΑ Annual spare parts cost per yr \$178 \$178 \$178 <u>NA</u> <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$466 \$466 \$466 NA NA ŅΑ Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.21 \$0.34 \$0.16 NA NA NA - Pump out minutes 0.35 0.56 0.27 NA NA NA - Connect/Disc. minutes NA 0.0 0.0 0.0 NA NA - Waste Disposal \$0.72 \$0,56 \$1.14 <u>NA</u> NA <u>NA</u> Subtotal- End of Day/Trip Srvc \$12.93 \$13.47 \$12.72 NA NA NA Train Delay: - Pump out volume req'd 0 0 0 NA NA NA - # of stops req'd 0 0 0 NA NA NA 0.0 - Pump out minutes 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 NA 0.0 <u>NA</u> <u>NA</u> NA - Total Time Delay(mins/car) 0 ٥ 0 NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Opring Trip Related \$13 \$13 \$13 NA NA NA Total # Cars in fleet 45 24 NΑ 266 NA NA Total Annual Car-days 16,425 97,090 8,760 NA NA NA Adjusted Total Car-days 9,855 5,256 NA NA 58,254 NA Days per Trip (min. of 1) 1 1 <u>1</u> 1 1 Annual Oprtng Trip Related per Car \$2,832 \$2,951 \$2,786 NA NA NA Annual Non-Trip Related per Car \$466 \$466 \$466 NA NA NΑ Annual Opring Trip Related per Car Type \$127,430 \$784,956 \$66,855 NA NA NA Annual Non-Trip Related per Car Type \$20,970 \$123,956 \$11,184 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,298 \$3,417 \$3,252 NA NA NA Total CAPITAL COST per Car \$19,816 \$19,816 \$19,816 NA NA NA Total OPRTNG COST for all cars NA NA NΑ \$148,400 \$908,912 \$78,039

Route Number:

#193

Amtrak Route:

Total CAPITAL COST for all cars

Benjamin Franklin

\$5,271,056

\$475,584

NA

NA

NA

\$891,720

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia	l				
Length in Miles:	. 322		•			
Length in Hours:	6.55					
Expected Trips per Day:	. 2					•
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Favorable					
* All data on per car basis (unless noted	otherwise)			•	i	, ,
	20000	21000	20100	NA	NA	NA
	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated	53	. 84	41	NA	. NA	NA
Toilets per car	2	. 2	2	NA	NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	∮ ŅĄ	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6,00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	.6	6	6
Flush Fluids/flush (gals)	0,263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	83.7	132.6	64.7	NA	NA	NA
Capacity Req'd/day (gals)	58.7	93.0	45.4	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	73.3	116.2	56.7	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NÃ.	NA
Continuous Service Hours Supported As a percentage of 72 hours	33 45%	21 . 29%	. 42 59%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	2.5	1.6	. 3.2	NA	NA	NA
As a percentage of 3 days	83.28%	52.54%	107.65%	, NA	· NA	NA
Consecutive Trips before pumpout	4.0	3.0	6.0	· NA	NA	· NA
CAPITAL COSTS						,
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA <sup>*</sup>	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$6,000</u>	<u>NA</u> .	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA	. NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	NA
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA NA	· NA	NA

Benjamin Franklin Amtrak Route: Route Number: #193 Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 Expected Trips per Day: 2 Manufacturer: Railtech WTS 8300 Equipment: Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20000 21000 20100 NA NA NA <u>Amcafe</u> **Amcoach** <u>Amclub</u> <u>NA</u> <u>NA</u> NA **OPERATING COSTS** Non-Trip Related Costs: \$144 \$144 Labor cost/major servicing \$144 NA NA NA Frequency per Year <u>2</u> 2 2 2 2 2 Servicing Cost/Year \$288 \$288 \$288 NA NA NA Annual spare parts cost per yr \$140 \$140 \$140 NA NA <u>NA</u> Total- Oprtng Non-Trip Related \$428 \$428 \$428 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.59 \$0.93 \$0.45 NA NA NA - Pump out minutes 0.98 1.55 0.76 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$1.99 \$3.16 \$1.54 <u>NA</u> <u>NA</u> <u>NA</u> Subtotal- End of Day/Trip Srvc \$14.58 \$16.09 \$14.00 NA NA NA Train Delay: - Pump out volume req'd 0. 0 0 NA NA NA - # of stops req'd 0 0 0 NΑ NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 <u>NA</u> 0.0 0.0 <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Oprtng Trip Related \$15 \$16 \$14 NA NA NA Total # Cars in fleet 45 266 24 NA NA NA Total Annual Car-days 16,425 97,090 8,760 NA NA NA Adjusted Total Car-days 9,855 58,254 5.256 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car-\$3,524 \$3,193 \$3,065 NA NA NA Annual Non-Trip Related per Car \$428 \$428 \$428 NA NA NA Annual Opring Trip Related per Car Type \$143,699 \$937,376 \$73,568 NA NA NA Annual Non-Trip Related per Car Type \$19,260 \$113,848 \$10,272 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,621 \$3,952 \$3,493 NA NA NA Total CAPITAL COST per Car \$15,152 \$15,152 \$15,152 NA NΑ NA Total OPRTNG COST for all cars \$162,959 \$1,051,224 \$83,840 NA NA NA

\$4,030,432

\$363,648

NA

NA

\$681,840

Total CAPITAL COST for all cars

C3.6 Metroliner, Washington DC-New York

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles:

225 2.78

Length in Hours: Expected Trips per Day:

6

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

* All data on per car basis (unless noted	•					
	20900 Met-Srvc Dinette	21900 Met-Sryc Coach	20970 Met-Srvc Club	NA NA	NÁ NA	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA NA
Capacity (# people) - seated	23	60	33	NA NA	NA NA	. NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	11.5	30.0	16.5	NA .	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	. 6	6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	8.7	22.7	12.5	NA	NA	. NA
Capacity Req'd/day (gals)	13.2	34.5	19.0	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	16.5	43.1	23.7	NA	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	341 474%	131 182%	238 330%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	20.5	7.8	14.3	NA	NA	NA
As a percentage of 3 days	682.08%	261.46%	475.39%	NA	NA	NA
Consecutive Trips before pumpout	122.0	47.0	85.0	NA	NA	NA
CAPITAL COSTS			•			
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	\$5,000	<u>NA</u>	. <u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation						•
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	· NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	NA NA	NANA	NA
						-

Metroliner Amtrak Route: Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA NA <u>NA</u> <u>NA</u> Met-Srvc Dinette Met-Sryc Coach Met-Srvc Club <u>NA</u> OPERATING COSTS Non-Trip Related Costs: \$144 \$144 \$144 NA NA NA Labor cost/major servicing Frequency per Year <u>2</u> 2 2 2 <u>2</u> 2 \$288 NA NA NA Servicing Cost/Year \$288 \$288 Annual spare parts cost per yr \$260 \$260 \$260 <u>NA</u> <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$548 \$548 \$548 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 NA - Cleaning \$12 \$12 NA NA \$0 - Light Repair \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.13 \$0.34 \$0.19 NA NA NA 0.22 0.32 NA NA NA - Pump out minutes 0.57 - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$1.35 \$3.52 \$1.93 <u>NA</u> <u>NA</u> <u>NA</u> Subtotal- End of Day/Trip Srvc \$13.48 \$15.86 \$14.12 NA NA NA Train Delay: - Pump out volume req'd 0 0 NA 0 NA NA - # of stops reg'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 NA NA NA 0.0 - Connect/Disc. minutes 0.0 <u>NA</u> 0.0 <u>NA</u> <u>NA</u> 0.0 - Total Time Delay(mins/car) 0 NA NA 0 0 NA Average Cost Per Delay \$0 \$0 \$0 ·ΝΑ NA NA Subtotal-Opring Trip Related \$13 \$16 \$14 NA NA NA Total # Cars in fleet 13 50 13 NA NA NA Total Annual Car-days 4,745 18,250 4,745 NA NA-NA Adjusted Total Car-days 2,847 10,950 2,847 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$2,952 \$3,474 \$3,093 NA NA NA Annual Non-Trip Related per Car \$548 \$548 \$548 NA NA NA' Annual Oprtng Trip Related per Car Type \$38,379 \$173,694 \$40,212 NA NA NA Annual Non-Trip Related per Car Type \$27,400 \$7,124 \$7,124 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,500 \$4,022 \$3,641 NA NA NA Total CAPITAL COST per Car \$28,016 \$28,016 \$28,016 ΑΛ NA NA

\$201,094

\$1,400,800

\$47,336

\$364,208

NA

NA

NA

NA

\$45,503

\$364,208

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Amtrak Route: Metroliner #200 Route Number:

Origin/Destination:

Washington DC-New York

Length in Miles:

225

Length in Hours: Expected Trips per Day: 2.78 6

Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

* All data on per car basis (unless noted	dotherwise)					
·	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Sryc Club	NA <u>NA</u>	NA NA	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA ·	. NA
Capacity (# people) - seated	23	60	33	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	ŅA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	. 6	6	6	6	6
Flush Fluids/flush (gals)	0.000	. 0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA .	NA	NA
Capacity Req'd/day (gals)	7.2	18.7	10.3	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	9.0	23.4	12.9	NA	NA	· NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA -
Continuous Service Hours Supported As a percentage of 72 hours	72 100%	28 38%	50 70%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	4.3	1.7	3.0	NA	NA	NA
As a percentage of 3 days	144.34%	55.33%	100.60%	NA	NA	NA
Consecutive Trips before pumpout	25.0	9.0	18.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	, <b>\$</b> 0	\$0	<b>\$</b> 0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation			_			
Collection System per Car	\$0	. \$0	\$0	\$0	\$0	. \$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	NA NA
- Total Installation Cost	\$576	\$576	\$576	NA	NA NA	NA NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA NA	NA	NA

Route Number: #200 Amtrak Route: Metroliner Washington DC-New York Origin/Destination: Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Favorable \* All data on per car basis (unless noted otherwise) NA 20900 21900 20970 NA Met-Srvc Club NA NA NA Met-Srvc Dinette Met-Srvc Coach **OPERATING COSTS** Non-Trip Related Costs: \$576 \$576 \$576 NA NΑ NA Labor cost/major servicing 2 Frequency per Year 2 2 2 2 2 \$1,152 \$1,152 \$1,152 NA NA NA Servicing Cost/Year Annual spare parts cost per yr \$65 \$65 \$65 <u>NA</u> <u>NA</u> <u>NA</u> NA NA NA Total- Opring Non-Trip Related \$1,217 \$1,217 \$1,217 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA NA \$12 \$12 \$12 NA - Cleaning - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.07 \$0.19 \$0.10 NA NA NA NA - Pump out minutes 0.12 0.31 0.17 NA NA NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> - Waste Disposal \$0.95 \$2.47 \$1.36 <u>NA</u> NA NA Subtotal- End of Day/Trip Srvc NA NA \$13.02 \$14.66 \$13.46 Train Delay: ٥ ٥ ٥ NA NA NA - Pump out volume reg'd - # of stops req'd 0 0 0 NA NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA 0 0 NA NA NA - Total Time Delay(mins/car) 0 Average Cost Per Delay \$0 \$0 \$0 NA NA NA NA Subtotal-Opring Trip Related \$13 \$15 \$13 NA NA NA NA NA Total # Cars in fleet 13 50 13 Total Annual Car-days 4,745 18,250 4,745 NA NA NA Adjusted Total Car-days 2,847 10,950 2,847 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$2,851 \$3,210 \$2,948 NA NA NA NA Annual Non-Trip Related per Car \$1,217 \$1,217 \$1,217 NA NA NA NA NA Annual Oprtng Trip Related per Car Type \$37,066 \$160,513 \$38,327 Annual Non-Trip Related per Car Type \$60,850 \$15,821 <u>NA</u> <u>NA</u> <u>NA</u> <u>\$15,821</u> NA NA

\$4,427

\$7,076

\$221,363

\$353,800

\$4,068 -

\$7,076

\$52,887

\$91,988

\$4,165

\$7,076

\$54,148

\$91,988

NA

NA

NA

NΑ

NA

NA

NA

NA

NA

Total OPRTNG COST per Car

Total CAPITAL COST per Car

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles:

225

Length in Hours: Expected Trips per Day: 2.78 6

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Favorable

* All data on per car basis (unless noted	d otherwise)		•			
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 <u>Met-Srvc Club</u>	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	23 2	60 2	· 33 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA NA	NA NA	NA NA
Car Waste Data (per car)				•		-
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	. 6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	23.7	61.9	34.1	NA	NA	NA
Capacity Req'd/day (gals)	23.7	61.8	34,0	. NA	NA	NA
Adj. Capacity Req'd w/ Buffer	29.6	77.2	42.5	NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	243 338%	93 130%	170 236%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16:68	16.68	16.68	16.68	16.68
Service Days Supported	14.6	5.6	10.2	NA	NA	NA
As a percentage of 3 days	486.23%	186.39%	338.88%	NA	NA	NA
Consecutive Trips before pumpout	87.0	33.0	60.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA NA	NA	NA NA

Metroliner

Route Number:

Origin/Destination:

Washington DC-New York

Length in Miles:

225 2.78 6

Length in Hours: Expected Trips per Day:

---

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Favorable

	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA <u>NA</u>	NA <u>NA</u>	N/ <u>N</u> /
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	N/
Frequency per Year	<u>2</u>	· <u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	、 \$288	\$288	\$288	NA	NA	N
Annual spare parts cost per yr	\$200	<u>\$200</u>	<u>\$200</u>	<u>NA</u>	<u>NA</u>	<u>N</u>
Total- Oprtng Non-Trip Related	\$488	\$488	\$488	NA	NA NA	N/
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.24	\$0.62	\$0.34	NA	NA	N/
- Pump out minutes	0.39	1.03	0.57	NA	NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	NA NA	NA	N/
- Waste Disposal	<u>\$2.41</u>	<u>\$6.30</u>	<u>\$3.46</u>	<u>NA</u>	<u>NA</u>	. <u>N</u>
Subtotal- End of Day/Trip Srvc	\$14.65	\$18.92	\$15.80	. NA	ŅA	N
Train Delay:						
- Pump out volume req'd	0	0	0	NA ,	·NA	N/
- # of stops req'd	0	0	0	NA	NA	N/
- Pump out minutes	0.0	0.0	0.0	NA	NA	N/
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>N/</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	N/
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N/
Subtotal- Opring Trip Related	\$15	\$19	\$16	NA NA	NA	N/
Total # Cars in fleet	13	50	13	NA	NA	N/
Total Annual Car-days	4,745	18,250	4,745	NA	NA	N/
Adjusted Total Car-days	2,847	10,950	2,847	NA	NA	N/
Days per Trip (min. of 1)	. 1	1	1	<u>1</u>	1	1
Annual Opring Trip Related per Car	\$3,209	\$4,143	\$3,461	NA	NA	N
Annual Non-Trip Related per Car	\$488	\$488	\$488	NA	NA	N/
Annual Opring Trip Related per Car Type	\$41,713	\$207,140	\$44,995	NA	NA .	N/
Annual Non-Trip Related per Car Type	<u>\$6,344</u>	<u>\$24.400</u>	<u>\$6,344</u>	<u>NA</u>	<u>NA</u>	. <u>N</u> /
Total OPRTNG COST per Car	\$3,697	\$4,631	\$3,949	· NA	NA	N/
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	N/

Metroliner

Route Number:

Origin/Destination:

Washington DC-New York

Length in Miles: Length in Hours: 225

Expected Trips per Day:

2.78 6

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Favorable

All data on per car basis (unless noted	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA	NA	NA
0 10 10 1				<u>NA</u>	NA	<u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	23 2	60 2	33 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						•
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA ·	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	6.5	16.9	9.3	NA	NA	NA
Capacity Req'd/day (gals)	11.7	30.5	16.8	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	14.6	38.1	21.0	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	329 456%	126 175%	229 318%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	19.7	7.6	13.7	NA	NA	NA
As a percentage of 3 days	656.73%	251.74%	457.72%	NA	NA	NA
Consecutive Trips before pumpout	118.0	45.0	82.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<b>\$5,800</b>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	. <u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	ŅA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA	NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles:

225 2.78

Length in Hours: Expected Trips per Day:

6

Manufacturer: Equipment:

Evac

Ultimate

Scenario:

* All data on per car basis (unless noted of	20900	21900	20970	NA NA	NA	NA
OREDATING COOTS	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	NA	. <u>NA</u>
OPERATING COSTS  Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	· NA	NA	NA
Frequency per Year	2	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$288	NA	NA	NA
Annual spare parts cost per yr	<u>\$178</u>	<u>\$178</u>	. <u>\$178</u>	<u>NA</u>	<u>NA</u>	<u> NA</u>
Total- Opring Non-Trip Related	\$466	\$466	\$466	, NA	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing			•			
- Cleaning	\$12	\$12	. \$12	NA	NA	NA
- Light Repair	. \$0	\$0	\$0	\$0	<b>\$</b> 0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.12	\$0.30	\$0.17	NA	NA	NA
- Pump out minutes	0.19	0.51	0.28	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	· 0.0	NA	NA	ŇΑ
- Waste Disposal	<u>\$1.19</u>	<u>\$3.11</u>	<u>\$1.71</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.31	\$15.41	\$13.88	NA -	NA:	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	. NA	NA	NA
- Connect/Disc. minutes	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	, NA
Subtotal- Oprtng Trip Related	\$13	\$15	\$14	NA NA	NA -	NA NA
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	2,847	10,950	2,847	NA	NA	NA.
Days per Trip (min. of 1)	1	1	1	1	<u>1</u>	1
Annual Opring Trip Related per Car	\$2,915	\$3,376	\$3,039	NA	NA	NA
Annual Non-Trip Related per Car	\$466	\$466	\$466	NA	NA	NA
Annual Opring Trip Related per Car Type	\$37,890	\$168,784	\$39,510	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$6,058</u>	\$23,300	<u>\$6,058</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,381	\$3,842	\$3,505	NA	NA	NA
Total CAPITAL COST per Car	<b>\$1</b> 9,816	\$19,816	\$19,816	NA	NA	· NA
Total OPRTNG COST for all cars	\$43,948	\$192,084	\$45,568	NA	NA	NA
Total CAPITAL COST for all cars	\$257,608	\$990,800	\$257,608	NA	NA NA	NA

Amtrak Route: Metroliner Route Number: #200
Origin/Destination: Washington DC-New York
Length in Miles: 225
Length in Hours: 2.78

Expected Trips per Day:

6 Railtech

Manufacturer: Equipment:

WTS 8300

Scenario: Favorable

* All data on per car basis (unless noted	d otherwise)		•			
и	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	23 2	60 2	. 33 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:		•				
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	36.3	94.7	52.1	NA	NA	NA
Capacity Req'd/day (gals)	32.4	84.6	46.5	NA	NA	NA ·
Adj. Capacity Req'd w/ Buffer	40.5	105.7	58.1	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	59 82%	23 32%	41 57%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16,68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	3.6	1.4	2.5	NA	NA	NA
As a percentage of 3 days	118.36%	45.37%	82.50%	NA .	. NA	NA
Consecutive Trips before pumpout	21.0	8.0	14.0	NA	NA	NA
CAPITAL COSTS						•
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA	NA	. NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	. <u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	, NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA NA	NA	NA

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York 225 Length in Miles: Length in Hours: 2.78 Expected Trips per Day: Manufacturer: Railtech Equipment: WTS 8300 Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20900 20970 NΑ NA NA 21000 NA Met-Srvc Dinette <u>NA</u> <u>NA</u> Met-Srvc Club Met-Srvc Coach **OPERATING COSTS** Non-Trip Related Costs: NA \$144 \$144 \$144 NA NA Labor cost/major servicing 2 <u>2</u> Frequency per Year 2 2 2 2 NA NA NA \$288 \$288 \$288 Servicing Cost/Year <u>NA</u> <u>NA</u> Annual spare parts cost per yr \$140 \$140 \$140 <u>NA</u> Total- Oprtng Non-Trip Related \$428 \$428 \$428 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA NA NA - Cleaning \$12 \$12 \$12 - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal NA - Pump out Cost \$0.32 \$0.85 \$0.47 NΑ NA NA NA - Pump out minutes 0.54 1.41 0.78 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA <u>NA</u> <u>NA</u> . - Waste Disposal \$3.31 \$8.63 \$4.74 <u>NA</u> \$17.21 NA NA NA Subtotal- End of Day/Trip Srvc \$15.63 \$21.47 Train Delay: NA - Pump out volume req'd 0 0 0 NA NA - # of stops reg'd 0 0 0 NA NA NA 0.0 0.0 0.0 NΑ NA NA - Pump out minutes - Connect/Disc. minutes <u>NA</u> <u>NA</u> NΑ 0.0 0.0 0.0 - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA ŇΑ NA Subtotal-Oprtng Trip Related \$16 \$21 \$1.7 NA NA NA 50 13 NA NA NA Total # Cars in fleet 13 Total Annual Car-days 4,745 18,250 4,745 NA NA NA NA 2,847 10,950 2,847 NA NA Adjusted Total Car-days Days per Trip (min. of 1) 1 1 1 1 1 1 \$3,423 \$4,702 \$3,769 NA NA NA Annual Opring Trip Related per Car \$428 \$428 NA NA NA Annual Non-Trip Related per Car \$428 NA NA \$44,501 \$235,111 \$48,995 NA Annual Oprtng Trip Related per Car Type

\$21,400

\$5,130

\$15,152

\$256,511

\$757,600

<u>\$5,564</u>

\$3,851

\$15,152

\$50,065

\$196,976

\$5,564

\$4,197

\$15,152

\$54,559

\$196,976

<u>NA</u>

NA

NA

NA:

NA

<u>NA</u>

NA

NA

NA.

NA

<u>NA</u>

NA

NA

NA

NA

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Total OPRTNG COST per Car

Total CAPITAL COST per Car

C3.7 Hudson Highlander, Albany-New York

Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) NA 20200 21800 NA NA 21000 Amcoach **Amdinette** Amcoach <u>NA</u> NA NA NA NA NA Quantity of cars 3 60 NA NA NA 23 Capacity (# people) - seated 84 NA NA NA Toilets per car 2 2 NΑ NA 42.0 11.5 30.0 NA Average persons/toilet on train Car Waste Data (per car) Black Water: Human Waste/day (gals) 37.72 10.33 26.94 NA NA NA 6.00 6.00 6.00 # Flushes/Person-day 6.00 6.00 6.00 1.00 1.00 1.00 1.00 Flush efficiency adjustment 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 0.063 0.063 0.063 Flush Fluids/flush (gals) 0.063 0.063 0.063 NA NA Flush Fluids/day (gals) 22.7 NA 31.8 8.7 NA NA Capacity Req'd/day (gals) 45.5 12.5 32.5 NA Adj. Capacity Req'd w/ Buffer 56.9 15.6 40.6 NA NA NA 235 235 235 235 235 Tank Capacity per Car (gals) 235 Continuous Service Hours Supported 99 362 139 As a percentage of 72 hours 138% 503% 193% NA NA NA 15.72 Probable Service Hours per Day 15.72 15.72 15.72 15.72 15.72 6.3 23.0 8.8 NA NA NA Service Days Supported NA As a percentage of 3 days 210.27% 767.93% 294.37% NA NA Consecutive Trips before pumpout 37.0 138.0 52.0 NA NA NA CAPITAL COSTS \$21,000 \$21,000 \$21,000 Collection System per Car \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$5,000 \$5,000 \$5,000 <u>NA</u> <u>NA</u> <u>NA</u> \$26,000 - Total Equip Cost \$26,000 \$26,000 NA NA NA **Equipment Installation** \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Collection System per Car Toilet Cost per Car \$576 \$576 \$576 <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA

Route Number:

#242

Hudson Highlander

Amtrak Route:

**Total Capital Cost** 

\$28,016

\$28,016

NA

0

NA

NA

\$28,016

Hudson Highlander

Albany-New York City

Origin/Destination: Length in Miles:

142

Length in Hours:

2.62

6

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA <u>NA</u>	N. <u>N</u>
OPERATING COSTS	Anicoach	Amonieno	Amount	<u>17/7</u>	<u>INA</u>	13
Non-Trip Related Costs:			,			
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	N
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	2
Servicing Cost/Year	\$288	\$288	\$288	NA .	NA	N.
Annual spare parts cost per yr	<u>\$260</u>	<u>\$260</u>	<u>\$260</u>	<u>NA</u>	<u>NA</u>	<u>N.</u>
Total- Opring Non-Trip Related	\$548	\$548	\$548	NA NA	NA	N.
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N.
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposat	,					
- Pump out Cost	\$0.46	\$0.12	\$0.33	. NA	` NA	N.
- Pump out minutes	0.76	0.21	0.54	NA	NA	·N.
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	· N
- Waste Disposal	\$4.64	<u>\$1.27</u>	<u>\$3.32</u>	<u>NA</u>	<u>NA</u>	<u>N</u>
Subtotal- End of Day/Trip Srvc	\$17.10	\$13.40	\$15.64	NA	NA	N.
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	N
- # of stops req'd	0	0	0	NA	NA	N.
- Pump out minutes	0.0	0.0	0.0	NA	NA	N.
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	N.
- Total Time Delay(mins/car)	0	0	0	NA	NA	N.
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N.
Subtotal- Oprtng Trip Related	\$17	\$13	\$16	NA NA	NA	N.
Total # Cars in fleet	266	25	31	NA	NA	N
Total Annual Car-days	97,090	9,125	11,315	NA	NA	N
Adjusted Total Car-days	58,254	5,475	6,789	NA	NA-	N
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,744	\$2,934	\$3,425	NA	NA	Ň
Annual Non-Trip Related per Car	\$548	\$548	\$548	NA	NA	N.
Annual Oprtng Trip Related per Car Type	\$995,920	\$73,340	\$106,181	NA	NA	N
Annual Non-Trip Related per Car Type	<u>\$145,768</u>	<u>\$13,700</u>	<u>\$16,988</u>	NA	<u>NA</u>	<u>N</u>
Total OPRTNG COST per Car	\$4,292	\$3,482	\$3,973	NA	NA	N.
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	NA	N.
Total OPRTNG COST for all cars	\$1,141,688	\$87,040	\$123,169	NA	NA	N.

Route Number:

#242

Amtrak Route: Hudson Highlander Route Number: #242 Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Favorable \* All data on per car basis (unless noted otherwise) 21000 20200 21800 NA NA NA **Amcoach Amdinette** Amcoach <u>NA</u> <u>NA</u> <u>NA</u> NA NA NA Quantity of cars 3 1 Capacity (# people) - seated 84 23 60 NA NA NA 2 NA NA NA Toilets per car 2 2 Average persons/toilet on train 42.0 11.5 30.0 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 37.72 26.94 NA NA NA 10.33 6.00 6.00 6.00 # Flushes/Person-day 6.00 6.00 6.00 Flush efficiency adjustment 1.00 1.00 1.00 1.00 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 0.000 Flush Fluids/day (gals) 0.0 0.0 0.0 NA NA NA Capacity Req'd/day (gals) 24.7 6.8 17.6 NA NA NA Adj. Capacity Req'd w/ Buffer 30.9 8.5 22.1 NA NA NA Tank Capacity per Car (gals) 27 27 27 NA NA NA 29 41% 21 29% 77 106% NA NA Continuous Service Hours Supported NA NA NA NA As a percentage of 72 hours 15.72 15.72 15.72 15.72 Probable Service Hours per Day 15.72 15.72 Service Days Supported 1.3 4.9 1.9 NA NA NA As a percentage of 3 days 44.50% 162.51% 62.29% ŅΑ NA NA Consecutive Trips before pumpout 8.0 29.0 11.0 NA NA NA CAPITAL COSTS Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 Toilet Cost per Car \$6,500 \$6,500 \$6,500 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$6,500 \$6,500 \$6,500 NA NA NA Equipment Installation \$0 Collection System per Car \$0 \$0 \$0 \$0 \$0 Toilet Cost per Car <u>\$576</u> <u>\$576</u> <u>\$576</u> <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$576 NA \$576 \$576 NA NA

\$7,076

\$7,076

NA

NA

NA

\$7,076

Total Capital Cost

Hudson Highlander

Route Number:

#242

Origin/Destination:

Length in Miles:

Albany-New York City

142 2.62

6

Length in Hours: Expected Trips per Day:

Manufacturer: Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

* All data on per car basis (unless noted of	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA NA
OPERATING COSTS	<u></u>	<u></u>	<u></u>		<u></u>	
Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	NA
Frequency per Year	2	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$1,152	\$1,152	\$1,152	NA	NA	NA
Annual spare parts cost per yr	<u>\$65</u>	<u>\$65</u>	<u>\$65</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,217	\$1,217	\$1,217	NA NA	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute  End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$</b> 0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.25	\$0.07	\$0.18	NA	NA	NA
- Pump out minutes	0.41	0.11	0.29	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$3.26</u>	<u>\$0,89</u>	<u>\$2.33</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$15.51	\$12.96	\$14.51	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	. NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	. 0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Opring Trip Related	\$16	\$13	\$15	NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	58,254	5,475	6,789	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,396	\$2,838	\$3,177	NA	NA	NA
Annual Non-Trip Related per Car	\$1,217	\$1,217	\$1,217	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$903,401	\$70,959	\$98,479	NA	NA	NA
Annual Non-Trip Related per Car Type	\$323,722	<u>\$30,425</u>	<u>\$37,727</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$4,613	\$4,055	\$4,394	NA	NA	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	NA	- NA	NA
Total OPRTNG COST for all cars	\$1,227,123	\$101,384	\$136,206	NA	NA	NA
Total CAPITAL COST for all cars	\$1,882,216	\$176,900	\$219,356	NA	NA	NA

Amtrak Route: Hudson Highlander Route Number: #242 Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Favorable \* All data on per car basis (unless noted otherwise) 21000 20200 21800 NA **Amdinette** NA NA <u>NA</u> Amcoach Amcoach NA NA NA Quantity of cars 3 1 NA NA Capacity (# people) - seated 23 60 NΑ 84 NA Toilets per car 2 2 2 NA NA Average persons/toilet on train 42.0 30.0 NA NA NA 11.5 Car Waste Data (per car) Black Water: Human Waste/day (gals) 37.72 10.33 26.94 NA NA NA # Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 Flush efficiency adjustment 1.00 1.00 1.00 1.00 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 86.7 23.7 61.9 NA NA NA Capacity Req'd/day (gals) 81.5 22.3 58.2 NA NA NA Adj. Capacity Req'd w/ Buffer 101.9 27.9 72.8 NA NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 71 258 99 NA As a percentage of 72 hours 98% 359% 137% NA NA NA Probable Service Hours per Day 15.72 15.72 15.72 15.72 15.72 15.72 Service Days Supported 4.5 16.4 6.3 NA NA NA As a percentage of 3 days 149.89% 547.42% 209.85% NA NA NA Consecutive Trips before pumpout 26.0 98.0 37.0 NA NA NA CAPITAL COSTS Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$10,000 \$10,000 \$10,000 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$20,000 \$20,000 \$20,000 NA NA NA Equipment Installation

\$576

<u>\$576</u>

\$1,152

\$21,152

Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

\$576

\$576

\$1,152

\$21,152

\$576

\$576

\$1,152

\$21,152

\$576

<u>NA</u>

NA

NA

\$576

<u>NA</u>

NA

NA

\$576

<u>NA</u>

NA

NA

Hudson Highlander

Origin/Destination: Length in Miles:

Albany-New York City 142

Length in Hours: Expected Trips per Day: 2.62 6

Manufacturer:

Equipment:

Microphor Gravity

Scenario:

Favorable

Scenario:	Favorable					
* All data on per car basis (unless noted	otherwise)					
	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	. NA NA
OPERATING COSTS Non-Trip Related Costs:	· · · · ·				<del></del>	
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	2	<u>2</u>	2	<u>2</u>	2	<u>2</u> .
Servicing Cost/Year	\$288	\$288	\$288	NA	NA.	NA.
Annual spare parts cost per yr	* <u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$488	\$488	\$488	NA	NA	NA
Trip Related Costs:	•			•		
Toilet maintenance enroute End of Day/Trip Servicing	:					
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	<b>\$0</b> ,
Pump out and Disposal						
- Pump out Cost	\$0.81	\$0.22	\$0.58	NA	NA	NA
- Pump out minutes	1.36	0.37	0.97	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$8.31</u>	<u>\$2.28</u>	<u>\$5.94</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$21.13	\$14.50	\$18.52	NA `	NA	NA
Train Delay:					. 7	
- Pump out volume req'd	0	0	0	NA	· NA	ŃΑ
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	• <u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Opring Trip Related	\$21	\$14	\$19	NA NA	NA	NA NA
Total # Cars in fleet	266	. 25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	, NA	NA	NA
Adjusted Total Car-days	58,254	5,475	6,789	NA	NA	. NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$4,627	\$3,175	\$4,056	NA	NA	NA
Annual Non-Trip Related per Car	\$488	\$488	\$488	, NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$1,230,690	\$79,381	\$125,724	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$129,808</u>	<u>\$12,200</u>	<u>\$15,128</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,115	\$3,663	\$4,544	NA	NA	NA
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$1,360,498 \$5,626,432	\$91,581 \$528,800	\$140,852 \$655,712	NA NA	NA NA	NA NA

Route Number:

#242

Amtrak Route:	Hudson Highlander	•	Route Number:	#242		
Origin/Destination:	Albany-New York C	ity				,
Length in Miles:	142					
Length in Hours:	2.62					
Expected Trips per Day:	6					
Manufacturer:	Evac					•
Equipment:	Ultimate					
Scenario:	Favorable				*	
* All data on per car basis (unless noted of	therwise)	•				-
	21000	20200	21800	NA	NA	NA
·	<u>Amcoach</u>	<u>Amdinette</u>	Amcoach	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	84 2	23 2	60 2	NA NA	NA NA	NA NA
Average persons/toilet on train	42.0	11.5	30.0	NA	. NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	23.7	6.5	16.9	NA	NA	NA
Capacity Req'd/day (gals)	40.2	11.0	28.7	. NA	NA	NA
Adj. Capacity Req'd w/ Buffer	50.3	13.8	35.9	, NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	95 133%	349 484%	134 186%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	6.1	22.2	8.5	NA	NA	NA
As a percentage of 3 days	202.45%	739.39%			NA	NA
Consecutive Trips before pumpout	36.0	133.0	51.0	NA	, NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1 <u>.,</u> 440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA_	NANA	NA NA

Hudson Highlander

Origin/Destination: Length in Miles:

Albany-New York City 142

Length in Hours:

Expected Trips per Day:

2.62 6

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:	Favorable ,					
* All data on per car basis (unless noted of	therwise)					
•	21000	20200	21800	NA	NA	NA
•	<u>Amcoach</u>	<u>Amdinette</u>	<u>Amcoach</u>	. <u>NA</u>	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	· <u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	2
Servicing Cost/Year	\$288	\$288	\$288	NA	NA	NA
Annual spare parts cost per yr	<u>\$178</u>	<u>\$178</u>	<u>\$178</u>	<u>NA</u>	<u>NA</u>	. <u>NA</u>
Total- Opring Non-Trip Related	\$466	\$466	\$466	NA NA	NANA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•	•	• -	•	•	•
- Pump out Cost	\$0.40	· \$0.11	\$0.29	NA	NA	NA
- Pump out minutes	0.67	0.18	0.48	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	. NA
- Waste Disposal	\$4.10	\$1.1 <u>2</u>	\$2.93	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$16.50	\$13.23	\$15.22	NA NA	NA	NA NA
Train Delay:	*		¥75. <u></u>			
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	-NA	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u> NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	· NA	NA
Subtotal- Oprtng Trip Related	\$17	\$13	\$15	NA NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	58,254	5,475	6,789	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	<u>1</u>	1	1
Annual Opring Trip Related per Car	\$3,615	\$2,898	\$3,333	NA	NA .	NA
Annual Non-Trip Related per Car	\$466	\$466	\$466	NA NA	NA .	NA NA
Aimaa Non-Tip Holade per Ga	, 4400	Ψ+00	Ψ-00	IVA	NA.	147
Annual Opring Trip Related per Car Type	\$961,459	\$72,453	\$103,312	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$123,956</u>	<u>\$11,650</u>	<u>\$14,446</u>	<u>NA</u>	<u>NA</u>	· NA
Total OPRTNG COST per Car	\$4,081	\$3,364	\$3,799	NA	NA	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	NA	NA	NA
Total OPRTNG COST for all cars	01 00E 41E	·	.0117.750	Fartale toka <b>NÁ</b> S	NA.	NA
- 50000-500 F. F 1, 500000000 10 rays (1 - 40, 50, 40, 50, 40, 50, 1 - 1 ) 1 , 1 , 1 , 1 , 1 , 1 , 1 , 1 , 2	\$1,085,415	\$84,103	\$117,758		. 67. 30.000.000.000.000.000.000.000.000.000	
Total CAPITAL COST for all cars	\$5,271,056	\$495,400	\$614,296	NA	NA NA	NA

Route Number:

#242

Amtrak Route:	Hudson Hìghlande	r	Route Number:	#242		
Origin/Destination:	Albany-New York	City				•
Length in Miles:	142	•				
Length in Hours:	2.62				• •	
Expected Trips per Day:	6					
Manufacturer:	Railtech					
Equipment:	WTS 8300		2			
Scenario:	Favorable					
* All data on per car basis (unless noted		•				
·	21000	20200	21800	NA	NA	NA
	<u>Amcoach</u>	Amdinette	Amcoach	NA	NA.	<u>NA</u>
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated	84	23	60	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
			•		,	
Car Waste Data (per car)						
Black Water:	•	•				
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	. 6	6	-6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	132.6	36.3	94.7	0.209 NA	0.200 NA	0.200 NA
· idait i idida/day (galay	132.0	30.3	34.7		NA.	NA.
Capacity Req'd/day (gals)	111.6	30.6	79.7	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	139.5	38.2	99.6	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	. NA	· NA
Continuous Service Hours Supported As a percentage of 72 hours	17 24%	63 87%	24 <sup>°</sup> 33%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	1.1	4.0	1.5	NA	NA	NA
As a percentage of 3 days	36.49%	133.26%	51.08%	NA	NA	NA
Consecutive Trips before pumpout	6.0	23.0	. 9.0	NA	NĀ	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	,NA	NA	. NA
Toilet Cost per Car	\$6,000	\$6,000	\$6,000	NA	NA	NA
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA NA	NA NA	NA
Equipment Installation	· · · •	¥ - ·,- 2=	,,			
Collection System per Car	\$576	\$576	\$576	NA	NA	NA
Toilet Cost per Car	\$576	\$576	\$576	NA	<u>NA</u>	NA NA
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	· NA	NA	NA NA
	7.7,.02	Ţ.5,.5 <b>u</b>	<del></del>			,,,,

Amtrak Route:	Hudson Highlander		Route Number:	#242		
Origin/Destination:	Albany-New York C	City				
Length in Miles:	142					
Length in Hours:	2.62			•		
Expected Trips per Day:	6					
	Railtech					
		,				
• •	avorable				•	
* All data on per car basis (unless noted oth						
riii adia sir per sai pacis (amoss notes siii	21000	20200	21800	NA	NA .	NA
	Amcoach	Amdinette	Amcoach	NA NA	NA	NA NA
OPERATING COSTS Non-Trip Related Costs:			<del>_</del>		_	_
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	· NA
Frequency per Year	<u>2</u>	<u>2</u>	2	2	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$288	NA	NA NA	ÑA
Annual spare parts cost per yr	<u>\$140</u>	\$140	\$140	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$428	\$428	\$428	NA NA	NA	NA
<u></u>				-		
Trip Related Costs:						
Toilet maintenance enroute			•			
End of Day/Trip Servicing	610		610	NIA	NIA	
- Cleaning	\$12	\$12	\$12	NA aa	NA	NA 22
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal		<b>.</b>				
- Pump out Cost	\$1.12	\$0.31	\$0.80	NA	NA	NA
- Pump out minutes	1.86	0.51	1.33	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$11.38</u>	<u>\$3.12</u>	<u>\$8.13</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$24.50	\$15.42	\$20.93	NA	NA	NA
Train Delay:	•			•		
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	NA	NA	. NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0-	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$24	\$15	\$21	NA NA	NA	NA NA
	-		— — · ·			
Total # Cars in fleet	266	25	31	NA	NA	. NA
<b>~</b>						
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	58,254	E 17E	6 700	NΙΔ	NA	NA
Days per Trip (min. of 1)		5,475	6,789	NA 1		NA
Days per 111p (min. or 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$5,365	\$3,377	\$4,583	NA	NA	NA
Annual Non-Trip Related per Car	\$428	\$428	\$428	NA NA	NA NA	NA NA
Allitua Non-Trip Related per Oal	Ψ+20	ψ420	<b>\$426</b>	INO	INO	NO.
Annual Opring Trip Related per Car Type	\$1,427,031	\$84,434	* \$142,068	NA	NA	NA
Annual Non-Trip Related per Car Type	\$113,848	\$10,700	\$13,268	<u>NA</u>	NA	<u>NA</u>
	27.515	<del>+ : 51. 50</del>	3.0,200	<u> </u>	<u></u>	<del>1311</del>
Total OPRTNG COST per Car	\$5,793	\$3,805	\$5,011	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	NA
Total OPRTNG COST for all cars	\$1,540,879	\$95,134	\$155,336	NA NA	NA	NA
Total CAPITAL COST for all cars	\$4,030,432	\$378,800	\$469,712	NA .	NA	NA

C3.8 Electric City Express, Schenectady-New York

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles: Length in Hours: 160

Expected Trips per Day:

3.03

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

Quantity of cars Capacity (# people) - seated Toilets per car Average persons/toilet on train  Car Waste Data (per car)  Black Water: Human Waste/day (gals) # Flushes/Person-day Flush efficiency adjustment Adj. # Flushes/Person-day	12.12 6.00 1.00 6 0.063	3 72 2 36.0 32.33 6.00 1.00 6	1 52 1 52.0 23.35 6.00 1.00	1 40 1 40.0	NA NA NA NA NA NA 6.00	NA NA NA NA NA
Capacity (# people) - seated Toilets per car Average persons/toilet on train  Car Waste Data (per car)  Black Water: Human Waste/day (gals) # Flushes/Person-day Flush efficiency adjustment	27 1 27.0 12.12 6.00 1.00 6 0.063	72 2 36.0 32.33 6.00 1.00	52 1 52.0 23.35 6.00	40 1 40.0 17.96 6.00	NA NA NA NA	NA NA NA
Toilets per car Average persons/toilet on train  Car Waste Data (per car)  Black Water: Human Waste/day (gals) # Flushes/Person-day Flush efficiency adjustment	12.12 6.00 1.00 6 0.063	32.33 6.00 1.00	52.0 23.35 6.00	40.0 17.96 6.00	NA NA	NA NA
Car Waste Data (per car)  Black Water:  Human Waste/day (gals)  # Flushes/Person-day  Flush efficiency adjustment	12.12 6.00 1.00 6 0.063	32.33 6.00 1.00	23.35 6.00	17.96 6.00	NA	NA
Black Water: Human Waste/day (gals) # Flushes/Person-day Flush efficiency adjustment	6.00 1.00 6 0.063	6.00 1.00	6.00	6.00		
Human Waste/day (gals) # Flushes/Person-day Flush efficiency adjustment	6.00 1.00 6 0.063	6.00 1.00	6.00	6.00		
# Flushes/Person-day Flush efficiency adjustment	6.00 1.00 6 0.063	6.00 1.00	6.00	6.00		
Flush efficiency adjustment	1.00 6 0.063	1.00			6.00	6.00
	6 0.063		1.00			5.50
Adj. # Flushes/Person-day	0.063	6		1.00	1.00	1.00
			6	6	6	6
Flush Fluids/flush (gals)		0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	10.2	27.2	19.7	15.1	NA	NA
Capacity Req'd/day (gals)	11.3	30.1	21.7	16.7	NA	NA
Adj. Capacity Req'd w/ Buffer	14.1	37.6	27.1	20.9	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	400 556%	150 208%	208 289%	270 375%	NA NA	NA NA
Probable Service Hours per Day	12.12	. 12.12	12.12	12.12	12.12	12.12
Service Days Supported	33.0	12.4	17.1	22.3	ŃΑ	NA
As a percentage of 3 days	1100.49%	412.68%	571.41%	742.83%	NA	NA
Consecutive Trips before pumpout	132.0	49.0	68.0	89.0	NA	NA
CAPITAL COSTS		•				
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$2,500</u>	<u>\$5,000</u>	\$2,500	\$2,500	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$23,500	\$26,000	\$23,500	\$23,500	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$2,016	\$1,728	\$1,728	NA	NA
Total Capital Cost	\$25,228	\$28,016	\$25,228	\$25,228	NA	NA

Electric City Express

Schenectady-New York City

Route Number: #250

Length in Miles: Length in Hours:

Origin/Destination:

160 3.03 4

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

All data off per car basis (unless noted	151-Odd Turbo Power Club	170 Turbo Coach	170 Turbo Cafe	150-Even Turbo Power Coac	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:		14150 COGS.	10100 0000	·		131.3
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$144	\$288	\$144	\$144	NA.	NA
Annual spare parts cost per yr	<u>\$235</u>	\$260	\$235	\$2 <u>35</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$379	\$548	\$379	\$379	NA	NA
Trip Related Costs:	•					
Toilet maintenance enroute End of Day/Trip Servicing		e <sup>c</sup>				
- Cleaning	\$6	\$12	\$6	\$6	NA	· NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						,
- Pump out Cost	\$0.11	\$0.30	\$0.22	\$0.17	NA	NA
- Pump out minutes	0.19	0.50	0.36	0.28	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0	0.0	NA	. NA
- Waste Disposal	<u>\$0.77</u>	<u>\$2.04</u>	<u>\$1.48</u>	<u>\$1.14</u>	<u>NA</u>	. <u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.88	\$14.35	\$7.69	, \$7.30	, NA	NA
Train Delay:	•					
- Pump out volume req'd	0	0	. 0	0	NA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA:
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$7	\$14	\$8	\$7	NA NA	NA
Total # Cars in fleet	. 6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	, NA
Adjusted Total Car-days	1,314	4,599	657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	<u>1</u>
Annual Opring Trip Related per Car	\$1,507	\$3,142	\$1,685	\$1,599	NA	NA
Annual Non-Trip Related per Car	\$379	\$548	\$379	\$379	NA	NA
Annual Opring Trip Related per Car Type	\$9,040	\$65,975	\$5,055	\$22,391	· NA	NA
Annual Non-Trip Related per Car Type	<u>\$2,274</u>	<u>\$11,508</u>	<u>\$1,137</u>	<u>\$5,306</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$1,886	\$3,690	\$2,064	\$1,978	NA	NA
Total CAPITAL COST per Car	\$25,228	\$28,016	\$25,228	\$25,228	NA	NA
Total OPRTNG COST for all cars	\$11,314	\$77,483	\$6,192	\$27,697	NA	NA
Total CAPITAL COST for all cars	\$151,368	\$588,336	\$75,684	\$353,192	NA	NA

Electric City Express

Schenectady-New York City

Route Number:

#250

Origin/Destination:

Length in Miles:

160 3.03

Length in Hours: Expected Trips per Day: Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

Capacity (# people) - sealed         27         72         52         40         NA         NA           Toilets per car         1         2         1         1         1         NA         NA           Naverage persons/toilet on train         27.0         36.0         52.0         40.0         NA         NA           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         12.12         32.33         23.35         17.96         NA         N           # Flushes/Person-day         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.00         6.0	All data off per car basis (unless noted	151-Odd Turbo Power Club	170 Turbo Coach	170 Turbo Cafe	150-Even Turbo Power Coac	NA <u>NA</u>	NA NA
Capacity (# people) - sealed         27         72         52         40         NA         NA           Toilets per car         1         2         1         1         1         NA         NA           Naverage personsholiet on train         27.0         36.0         52.0         40.0         NA         NA           Car Waste Data (per car)           Black Water:           Human Waster/day (gals)         12.12         32.33         23.35         17.96         NA         N           Human Waster/day (gals)         12.12         32.33         23.35         17.96         NA         N           Human Waster/day (gals)         6.00 </th <th>Quantity of cars</th> <th>1</th> <th>3</th> <th>1</th> <th>1</th> <th>NA</th> <th>NA NA</th>	Quantity of cars	1	3	1	1	NA	NA NA
Average persons/toilet on train   27.0   36.0   52.0   40.0   NA   NA   NA   NA   NA   NA   NA   N					. 40	. NA	NA NA
Black Water:   Human Waste/day (gals)   12.12   32.33   23.35   17.96   NA   N    # Flushes/Person-day   6.00   6.00   6.00   6.00   6.00   6.00   6.00    # Flushes/Person-day   6.00   6.00   6.00   6.00   6.00   6.00    # Flushes/Person-day   6.6   6.6   6.6   6.6   6.6   6.6   6.6    # Flushes/Person-day   6.00   0.000   0.000   0.000   0.000   0.000    # Flushes/Person-day   6.1   6.6   6.6   6.6   6.6   6.6   6.6    # Flushes/Person-day   0.000   0.000   0.000   0.000   0.000   0.000    # Flushes/Person-day   0.000   0.000   0.000   0.000   0.000    # Flushes/Person-day   0.000   0.000   0.000   0.000   0.000    # Flushes/Person-day   0.000    # Flushes/Person-day   0.000   0.000    # Flushes/Person-day   0.000    # Flushes/Person-day   0.000    # Flushes/Person-day   0.000    # Flushes/Person-day	Average persons/toilet on train	27.0	36.0	52.0	40.0		NA
Human Waste/day (gals) 12.12 32.33 23.35 17.96 NA NA WHENSHEAY CALL TO STREET TO STREE	Car Waste Data (per car)					,	v
# Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.0	Black Water:						
Flush efficiency adjustment  1.00  1	Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
Adj. # Flushes/Person-day         6         8         6         0         8         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <td># Flushes/Person-day</td> <td>6.00</td> <td>6.00</td> <td>6.00</td> <td>6.00</td> <td>6.00</td> <td>6.00</td>	# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush Fluids/flush (gals) 0.000 0.00	Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Flush Fluids/day (gals)  0.0  0.0  0.0  0.0  0.0  0.0  NA  NA  NA  Capacity Req'd/day (gals)  6.1  16.3  11.8  9.1  NA  NA  Adj. Capacity Req'd w Buffer  7.7  20.4  14.7  11.3  NA  NA  NA  Tank Capacity per Car (gals)  13.5  27  13.5  13.5  NA  NA  NA  Continuous Service Hours Supported As a percentage of 72 hours  59%  44%  31%  40%  NA  NA  NA  NA  NA  Probable Service Hours per Day  12.12	Adj. # Flushes/Person-day	6	6	6	6	6	6
Capacity Req'd/day (gals) 6.1 16.3 11.8 9.1 NA NA Adj. Capacity Req'd w/ Bufter 7.7 20.4 14.7 11.3 NA NA NA Tank Capacity Per Car (gals) 13.5 27 13.5 13.5 NA NA NA Continuous Service Hours Supported 42 32 22 29 NA NA NA NA As a percentage of 72 hours 59% 44% 31% 40% NA NA NA NA As a percentage of 72 hours 12.12	Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Adj. Capacity Req'd w/ Bufter       7.7       20.4       14.7       11.3       NA       NA         Tank Capacity per Car (gals)       13.5       27       13.5       13.5       NA       NA         Continuous Service Hours Supported As a percentage of 72 hours       42       32       22       29       NA       NA         As a percentage of 72 hours       59%       44%       31%       40%       NA       NA         Probable Service Hours per Day       12.12	Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Tank Capacity per Car (gals)         13.5         27         13.5         13.5         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         42         32         22         29         NA         NA           As a percentage of 72 hours         59%         44%         31%         40%         NA         NA           Probable Service Hours per Day         12.12         <	Capacity Req'd/day (gals)	6.1	16.3	11.8	9.1	NA:	NA
Continuous Service Hours Supported A2 32 22 29 NA NA NA A3 a percentage of 72 hours 59% 44% 31% 40% NA NA NA NA A3 a percentage of 72 hours 59% 44% 31% 40% NA NA NA NA NA A3 a percentage of 72 hours per Day 12.12 12.	Adj. Capacity Req'd w/ Buffer	7.7	20.4	14.7	. 11.3	NA	NA
As a percentage of 72 hours 59% 44% 31% 40% NA NA Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 12.12  Service Days Supported 3.5 2.6 1.8 2.4 NA NA As a percentage of 3 days 116.44% 87.33% 60.46% 78.60% NA NA  Consecutive Trips before pumpout 13.0 10.0 7.0 9.0 NA NA  CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$3,250 \$6,500 \$3,250 \$3,250 NA NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$3,250 \$6,500 \$3,250 \$3,250 NA NA  Toilet Cost per Car \$0 \$5,500 \$3,250 \$3,250 NA NA  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$5,500 \$3,250 \$3,250 NA NA  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$288 \$576 \$288 \$288 NA  Total Installation Cost \$288 \$576 \$288 \$288 NA	Tank Capacity per Car (gals)	13.5	27	13.5	13.5	NA	NA
Service Days Supported         3.5         2.6         1.8         2.4         NA         NA           As a percentage of 3 days         116.44%         87.33%         60.46%         78.60%         NA         NA           Consecutive Trips before pumpout         13.0         10.0         7.0         9.0         NA         NA           CAPITAL COSTS         Collection System per Car         \$0				22 31%			NA NA
As a percentage of 3 days 116.44% 87.33% 60.46% 78.60% NA NA  Consecutive Trips before pumpout 13.0 10.0 7.0 9.0 NA NA  CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$3,250 \$6,500 \$3,250 \$3,250 NA NA  - Total Equip Cost \$3,250 \$6,500 \$3,250 \$3,250 NA NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$288 \$576 \$288 \$288 NA NA	Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Consecutive Trips before pumpout         13.0         10.0         7.0         9.0         NA         NA           CAPITAL COSTS         Collection System per Car         \$0	Service Days Supported	3.5	2.6	1.8	2.4	NA	NA NA
CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$3,250 \$6,500 \$3,250 \$3,250 NA NA  - Total Equip Cost \$3,250 \$6,500 \$3,250 \$3,250 NA NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$288 \$576 \$288 \$288 NA NA	As a percentage of 3 days	116.44%	87.33%	60.46%	78.60%	. NA	NA
Collection System per Car         \$0	Consecutive Trips before pumpout	13.0	10.0	7.0	9.0	NA	NA
Toilet Cost per Car         \$3,250         \$6,500         \$3,250         \$3,250         NA         NI           - Total Equip Cost         \$3,250         \$6,500         \$3,250         \$3,250         NA         NI           Equipment Installation         Collection System per Car         \$0         \$0         \$0         \$0         \$0         \$0           Toilet Cost per Car         \$288         \$576         \$288         \$288         NA         NA           - Total Installation Cost         \$288         \$576         \$288         \$288         NA         NA	CAPITAL COSTS						
- Total Equip Cost \$3,250 \$6,500 \$3,250 \$3,250 NA NA Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$288 \$576 \$288 \$288 NA NA NA	Collection System per Car	<b>\$0</b> ·	\$0	\$0	\$0	\$0	\$0
Equipment Installation           Collection System per Car         \$0	Toilet Cost per Car	<u>\$3,250</u>	<u>\$6,500</u>	\$3,250	<u>\$3,250</u>	<u>NA</u>	<u>NA</u>
Collection System per Car         \$0         \$0         \$0         \$0         \$0           Toilet Cost per Car         \$288         \$576         \$288         \$288         NA         NA           - Total Installation Cost         \$288         \$576         \$288         \$288         NA         NA	- Total Equip Cost	\$3,250	\$6,500	\$3,250	\$3,250		NA
Toilet Cost per Car         \$288         \$576         \$288         \$288         NA         NA           - Total Installation Cost         \$288         \$576         \$288         \$288         NA         NA	Equipment Installation						
- Total Installation Cost \$288 \$576 \$288 \$288 NA NA	Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
- Total Installation Cost \$288 \$576 \$288 \$288 NA NA	Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	\$288	<u>\$288</u>	<u>NA</u>	NA
Total Capital Cost \$3,538 \$7,076 \$3,538 \$3,539 NA N	- Total Installation Cost	\$288	\$576	\$288	\$288	NA	NA
19. οτις συτή συτή συτή της 19. 19. 19. 19. 19. 19. 19. 19. 19. 19.	Total Capital Cost	\$3,538	\$7,076	\$3,538	\$3,538	NA	NA NA

Electric City Express

Route Number:

#250

Origin/Destination:

Length in Miles:

Schenectady-New York City

160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

* All data on per car basis (unless noted	otherwise)	•			•	
	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS					<del>_</del>	_
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$576	\$288	\$288	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	_	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$576	\$1,152	\$576	\$576	NA	NA
Annual spare parts cost per yr	<u>\$33</u>	<u>\$65</u>	<u>\$33</u>	<u>\$33</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$609	\$1,217	\$609	\$609	NA NA	. NA
Trip Related Costs:				•		
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	. \$0
Pump out and Disposal						
- Pump out Cost	\$0.06	\$0.16	\$0.12	\$0.09	NA NA	NA.
- Pump out minutes	0.10	0.27	0.20	0.15	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$0.54</u>	<b>\$1.44</b>	\$1.04	<u>\$0.80</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.60	\$13.60	\$7.16	\$6.89	NA NA	NA NA
Train Delay:						
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	. 0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)					NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$7	\$14	\$7	\$7	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	N'A	NA
Adjusted Total Car-days	1,314	4,599	657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$1,445	\$2,978	\$1,567	\$1,509	NA	NA
Annual Non-Trip Related per Car	\$609	\$1,217	\$609	\$609	ÑA	NA
Annual Oprtng Trip Related per Car Type	\$8,672	\$62,546	\$4,701	\$21,121	NA	NA
Annual Non-Trip Related per Car Type	<u>\$3,651</u>	<u>\$25,557</u>	<u>\$1,826</u>	<u>\$8,519</u>	. <u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,054	\$4,195	\$2,176	\$2,117	NA	NA
Total CAPITAL COST per Car	\$3,538	\$7,076	\$3,538	\$3,538	, NA	NA
Total OPRTNG COST for all cars	\$12,323	\$88,103	\$6,527	\$29,640	NA	NA
Total CAPITAL COST for all cars	\$21,228	\$148,596	\$10,614	\$49,532	NA NA	NA NA

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Microphor

Equipment:

Micropno Gravity

Scenario:

Favorable

, , , , , , , , , , , , , , , , , , ,	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	, 1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA NA	, NA
Car Waste Data (per car)						
Black Water:						•
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	27.9	74.3	53.7	41.3	NA	NA
Capacity Req'd/day (gals)	20.2	53.8	38.9	29.9	NA	NA
Adj. Capacity Req'd w/ Buffer	25.2	67.3	48.6	37.4	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	285 396%	107 149%	148 206%	193 267%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	23.5	8.8	12.2	15.9	NA	NA
As a percentage of 3 days	784.49%	294.18%	407.33%	529.53%	NA	NA
Consecutive Trips before pumpout	94.0	35.0	48.0	63.0	NA	NA
CAPITAL COSTS					,	
Collection System per Car	\$10,000	\$10,000	\$10,000	· \$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$10,000</u>	<u>\$5,000</u>	\$5,00 <u>0</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$15,000	\$20,000	\$15,000	\$15,000	NA	NA
Equipment Installation					•	
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	\$288	<u>\$288</u>	<u>NA</u>	NA
- Total Installation Cost	\$864	\$1,152	\$864	\$864	NA .	NA
Total Capital Cost	\$15,864	\$21,152	\$15,864	\$15,864	NA	NA
•			. ,			

Amtrak Route: Origin/Destination:

Length in Miles:

Electric City Express

Schenectady-New York City

Route Number:

#250

NA <u>NA</u>

160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Microphor Gravity

Equipment:

Favorable

Scenario:

\* All data on per car basis (unless noted otherwise) 170 Turbo Cafe 150-Even Turbo Power Coac NA <u>NA</u> 151-Odd 170 Turbo Power Club Turbo Coach OPERATING COSTS
Non-Trip Related Costs:

Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u> :	<u>2</u>	<u>2</u>	2
Servicing Cost/Year	\$144	\$288	\$1 <b>44</b> 、	\$144	NA	NÁ
Annual spare parts cost per yr	<u>\$150</u>	<u>\$200</u>	<u>\$150</u>	<u>\$150</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$294	\$488	\$294	\$294	NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	. \$0
Pump out and Disposal		•				
- Pump out Cost	\$0.20	\$0.54	\$0.39	\$0.30	NA	NA
- Pump out minutes	0.34	0.90	0.65	0.50	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$1.37</u>	<b>\$3.66</b>	<u>\$2.64</u>	<u>\$2.03</u>	<u>NA</u>	. <u>NA</u>
Subtotal- End of Day/Trip Srvc	\$7.58	\$16.20	\$9.03	\$8.33	NA	NA
Train Delay:					•	
<ul> <li>Pump out volume req'd</li> </ul>	0	0	Ó	0	, NA	NA
- # of stops req'd	0	0	0	0 `	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	NA ·	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$8	\$16	\$9	\$8	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,314	4,599	657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$1,659	\$3,548	\$1,978.	\$1,825	NA	NA
Annual Non-Trip Related per Car	\$294	\$488	\$294	\$294	NA	NA
Annual Opring Trip Related per Car Type	\$9,954	\$74,505	\$5,935	\$25,550	NA	NA
Annual Non-Trip Related per Car Type	<u>\$1,764</u>	<u>\$10.248</u>	<u>\$882</u>	<u>\$4,116</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$1,953	\$4,036	\$2,272	\$2,119	NA	NA
Total CAPITAL COST per Car	\$15,864	\$21,152	\$15,864	\$15,864	` NA	NA
Total OPRTNG COST for all cars	\$11,718	\$84,753	\$6,817	\$29,666	NA	NA
Total CAPITAL COST for all cars	\$95,184	\$444,192	\$47,592	\$222,096	NA	NA

Amtrak Route: Origin/Destination: Electric City Express

Schenectady-New York City 160

4

3.03

Length in Hours: Expected Trips per Day: Manufacturer:

Length in Miles:

Equipment:

Evac Ultimate

Scenario:

Favorable

<ul> <li>All data on per car basis (unless noted</li> </ul>	otherwise)					
	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17,96	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	. 6	. 6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	7.6	20.3	14.7	11.3	NA	NA
Capacity Req'd/day (gals)	10.0	26.6	19.2	14.8	NA	NA
Adj. Capacity Req'd w/ Buffer	12.5	33.2	24.0	18.5	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	385 535%	144 201%	200 278%	260 361%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	31.8	11.9	16.5	. 21.5	NA	NA
As a percentage of 3 days	1059.58%	397.34%	550.17%	715.22%	NA	NA
Consecutive Trips before pumpout	127.0	47.0	66.0	85.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$2,900	<u>\$5,800</u>	<u>\$2,900</u>	<u>\$2,900</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,900	\$17,800	\$14,900	\$14,900	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	· <u>NA</u>
- Total Installation Cost	\$1,728	\$2,016	\$1,728	\$1,728	NA	NA
Total Capital Cost	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA NA

Route Number:

#250

Amtrak Route: Origin/Destination: Electric City Express

Schenectady-New York City

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160

Length in Miles: Length in Hours: Expected Trips per Day:

3.03 4

Manufacturer:

Equipment:

Evac Ultimate

Scenario:

Favorable

* All data on per car basis (unless noted of	otherwise)					
	. 151-Odd Turbo Power Club	170 Turbo Coach	170 Turbo Cafe	150-Even Turbo Power Coac	NA NA	NA <u>NA</u>
OPERATING COSTS			<del>, -, -, -, -, -, -, -, -, -, -, -, -, -,</del>			
Non-Trip Related Costs:				•		
Labor cost/major servicing	\$72	\$144	\$72		, NA	NA
Frequency per Year	2	. <u>2</u>	2		<u>2</u>	<u>2</u>
Servicing Cost/Year	\$144	\$288	\$144	\$144	NA	NA
Annual spare parts cost per yr	<u>\$149</u>	<u>\$178</u>	<u>\$149</u>		<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$293	\$466	\$293	\$293	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	* \$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.10	\$0.27	\$0.19	\$0:15	NA	NA
- Pump out minutes	0.17	0.44	0.32	0.25	NA NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$0.68	\$1.81	\$1.31	\$1.00	NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.78	\$14.07	\$7.50		NA ·	NA.
Train Delay:	*	******	*****	*****		
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	. 0		NA	NA
- Pump out minutes	0.0	0.0	0.0		NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0		NA	. NA
- Total Time Delay(mins/car)	0	0	0	0	NA NA	NA.
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$7	\$14	\$7	\$7	NA	NA
	•					,
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA .
Adjusted Total Car-days	1,314	4,599	657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$1,484	\$3,082	\$1,642	\$1,566	NA	NA
Annual Non-Trip Related per Car	*\$293	\$466	\$293	\$293	NA	NA
Annual Opring Trip Related per Car Type	\$8,906	\$64,723	\$4,926	\$21,927	NA	NA
Annual Non-Trip Related per Car Type	<u>\$1,758</u>	<u>\$9,786</u>	<u>\$879</u>	<u>\$4.102</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$1,777	\$3,548	\$1,935		NA	NA
Total CAPITAL COST per Car	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA
Total OPRTNG COST for all cars	\$10,664	\$74,509	\$5,805	\$26,029	NA	NA
Total CAPITAL COST for all cars	\$99,768	\$416,136	\$49,884	\$232,792	NA.	NA

Route Number:

#250

**Electric City Express** Amtrak Route: Route Number: #250 Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Railtech WTS 8300 Equipment: Scenario: Favorable \* All data on per car basis (unless noted otherwise) 151-Odd 170 170 150-Even NA Turbo Power Club Turbo Coach Turbo Cafe Turbo Power Coac <u>NA</u> <u>NA</u> Quantity of cars 1 3 NA NA 1 Capacity (# people) - seated 27 52 72 40 NA NA 2 Toilets per car NA NA Average persons/toilet on train 27.0 36.0 52.0 40.0 NA NΑ Car Waste Data (per car) Black Water: Human Waste/day (gals) 12.12 32.33 23.35 17.96 NA NA # Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 Flush efficiency adjustment 1.00 1.00 1.00 1.00 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 42.6 82.1 63.2 113.7 NA NA Capacity Req'd/day (gals) 27.7 73.7 53.3 41.0 NA NΑ Adj. Capacity Req'd w/ Buffer 34.6 92.2 66.6 51.2 NA NΑ Tank Capacity per Car (gals) 50 100 50 50 NA ŅΑ 23 33% Continuous Service Hours Supported 35 18 NA NΑ 25% As a percentage of 72 hours 48% 36% NA NA Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 12.12 Service Days Supported 2.9 2.1 1.5 1.9 NA NA 49.58% As a percentage of 3 days 95.49% 71.61% 64.45% NA NA Consecutive Trips before pumpout 11.0 8.0 5.0 7.0 NA NA CAPITAL COSTS

\$8,000

\$6,000

\$14,000

\$576

\$576

\$1,152

\$15,152

\$4,000

\$3,000

\$7,000

\$288

\$288

\$576

\$7,576

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NA

NA

NΑ

NA

NA

\$4,000

\$3,000

\$7,000

\$288

\$288

\$576

\$7,576

Collection System per Car

Collection System per Car

Toilet Cost per Car

**Equipment Installation** 

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

- Total Equip Cost

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03

Manufacturer:

in als

Equipment:

Railtech WTS 8300

Scenario:

Favorable

* All data on per car basis (unless noted of	therwise)					
	151-Odd	170	170	150-Even	NA	NA
	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	2	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	<u>=</u> \$144	\$288	\$144	\$14 <del>4</del>	ÑA	NA
Annual spare parts cost per yr	\$70	\$140	\$70	\$70	<u>NA</u>	NA
Total- Opring Non-Trip Related	\$214	\$428	\$214	\$214	NA NA	NA
						<del></del>
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0.	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.28	\$0.74	\$0.53	\$0.41	NA	r NA
- Pump out minutes	0.46	1.23	0.89	0.68	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<b>\$1.88</b>	\$5.01	<u>\$3.62</u>	<u>\$2.79</u>	<u>NA</u>	· <u>NA</u>
Subtotal- End of Day/Trip Srvc	\$8.16	\$17.75	\$10.15	\$9.20	NA	NA
Train Delay:						
- Pump out volume req'd	.0	0	. 0	0	NA	NA `
- # of stops reg'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	<u>0.0</u> .	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)		0	0	0	NA	NA
Average Cost Per Delay	. \$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$8	\$18	\$10	\$9	NA	NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA .	NA
Adjusted Total Car-days	1,314	4,599	. 657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	<u>1</u>	1	1
	A. ===			****		
Annual Opring Trip Related per Car	\$1,786	\$3,888	\$2,224	\$2,014	NA	NA
Annual Non-Trip Related per Car	\$214	\$428	\$214	\$214	NA	NA
Annual Opring Trip Related per Car Type	\$10,718	\$81,639	\$6,671	\$28,193	NA	NA
Annual Non-Trip Related per Car Type	<u>\$1,284</u>	<u>\$8,988</u>	<u>\$642</u>	<u>\$2,996</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,000	\$4,316	\$2,438	\$2,228	NA	NA
Total CAPITAL COST per Car	\$2,000 \$7,576	\$15,152	\$7,576	\$7,576	NA NA	NA NA
Total OAFTTAL COST per Car	, \$1,576	\$15,152	ψ/, <del>3</del> /6	φ/,5/6	INV	INA
Total OPRTNG COST for all cars	\$12,002	\$90,627	\$7,313	\$31,189	. NA	NA
Total CAPITAL COST for all cars	\$45,456	\$318,192	\$22,728	\$106,064	NA	NA
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C4 Cost Details, Unfavorable Scenario, Each Toilet System

C4.1 Sunset Limited, New Orleans-Los Angeles

Sunset Limited

Route Number:

#1-2

Origin/Destination:

ation: New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

1

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per dar basic (amoso notos o	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	. NA . <u>NA</u>	NA <u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated	75	72	44	86	NA	NA
Toilets per car	6	4	12	. 2	NA	NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	, NA
•						
Car Waste Data (per car)				,		
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	, 10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	47.3	45.4	27.7	54.2	NA	NA
Capacity Req'd/day (gals)	80.9	77.7	47.5	92.8	NA	NA
Adj. Capacity Req'd w/ Buffer	101.2	97.1	59.3	116.0	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	56 77%	58 81%	95 132%	68% 49	NA NA	NA NA
Probable Service Hours per Day	24	24.	24	24	24	24
Service Days Supported	2.3	2.4	4.0	2.0	NA	NA
As a percentage of 3 days	77.44%	80.66%	132.00%	67.53%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$15,000</u>	<u>\$10,000</u>	<u>\$30,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u> .
- Total Equip Cost	\$36,000	\$31,000	\$51,000	\$26,000	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	\$3,456	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Total Capital Cost	\$39,168	\$33,592	\$55,896	\$28,016	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Unfavorable

c		39940	32000	39970	NA	N/
· <u></u>	34000 Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	NA NA	N/
OPERATING COSTS					_	
Non-Trip Related Costs:					•	
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	N/
Frequency per Year	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$1,728	\$1,152	\$3,456	\$576	NA	N/
Annual spare parts cost per yr	<u>\$1,800</u>	<u>\$1,550</u>	<u>\$2,550</u>	<u>\$1,300</u>	<u>NA</u>	<u>N</u> A
Total- Oprtng Non-Trip Related	\$3,528	\$2,702	\$6,006	\$1,876	NA NA	N/
Trip Related Costs:			•			
Toilet maintenance enroute End of Day/Trip Servicing				A.		
- Cleaning	\$36	\$24	\$72	\$12	NA	N/
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.81	\$0.78	\$0.47	\$0.93	NA	N/
- Pump out minutes	1.35	1.29	0.79	1.55	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	N/
- Waste Disposal	<b>\$2.46</b>	<u>\$2.37</u>	\$1.4 <u>5</u>	\$2.83	<u>NA</u>	N/
Subtotal- End of Day/Trip Srvc	\$39.27	\$27.14	\$73.92	\$15.75	NA '	N/
Train Delay:						
- Pump out volume req'd	0	0	0	0	NA	N/
- # of stops req'd	0	. 0	0	0	NA	N/
- Pump out minutes	0.0	0.0	0.0	0.0	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>NA</u>	<u>N/</u>
- Total Time Delay(mins/car)	0	0	-0		NA NA	N/
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	N/
Subtotal- Opring Trip Related	\$39	\$27	\$74	\$16	NA NA	N/
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	26,572	6,132	19,856	1,752	NA	N/
Days per Trip (min. of 1)	2	<u>2</u>	2	<u>2</u>	<u>2</u>	2
Annual Oprtng Trip Related per Car	\$5,734	\$3,963	\$10,792	\$2,300	NA	N/
Annual Non-Trip Related per Car	\$3,528	\$2,702	\$6,006	\$1,876	NA	NA
Annual Oprtng Trip Related per Car Type	\$521,796	\$83,221	\$733,886	\$13,801	NA	N/
Annual Non-Trip Related per Car Type	<u>\$321,048</u>	\$56,742	\$408,408	<u>\$11,256</u>	<u>NA</u>	<u>N</u> A
T	\$9,262	\$6,665	\$16,798	\$4,176	NA NA	NA.
Total OPRTNG COST per Car		\$33,592	\$55,896	\$28,016	NA	N/

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Manufacturer: Equipment: Monogram Self-Cont'd Recirc

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted o	·					
	34000 <u>Coach Super</u>	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
Our-titue of	•				<del></del>	
Quantity of cars	4 75	72	3	1 86	NA	NA
Capacity (# people) - seated Toilets per car	75 6	4	44 12	2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA .
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	33.7	32.3	19.8	38.6	NA	NA
Adj. Capacity Req'd w/ Buffer	42.1	40.4	24.7	48.3	NA	· NA
Tank Capacity per Car (gals)	81	54	162	27	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	46 64%	32 45%	157 219%	13 19%	NA NA	NÁ NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.9	1.3	6.6	0.6	NA	NA
As a percentage of 3 days	64.14%	44.54%	218.67%	18.65%	NA	NA
Consecutive Trips before pumpout	1.0	0.0	3.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$19,500</u>	<u>\$13,000</u>	<u>\$39,000</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$19,500	\$13,000	\$39,000	\$6,500	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$1,152	· \$3,456	\$576	NA	NA
Total Capital Cost	\$21,228	\$14,152	\$42,456	\$7,076	NA	NA

Sunset Limited

Route Number:

Length in Miles:

Origin/Destination:

New Orleans-Los Angeles 2,033

Length in Hours:

43.00

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Unfavorable

* All data on per car basis (unless noted of	34000	39940	32000	39970	NA	NA
OPERATING COSTS	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	NA	<u>N</u> A
Non-Trip Related Costs:			•			•
Labor cost/major servicing	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Frequency per Year	4	4	4	4	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$6,912	\$4,608	\$13,82 <b>4</b>		· NA	NA
Annual spare parts cost per yr	\$975	\$650	\$1,950		NA NA	NA.
Total- Opring Non-Trip Related	\$7,887	\$5,258	\$15,774		NA NA	NA NA
Trip Related Costs:	•			•		
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal					•	
- Pump out Cost	\$0.34	\$8.40	\$0.20	\$4.32	NA	NA
- Pump out minutes	0.56	0.00	0.33	0.19	NA	NA
- Connect/Disc. minutes	0.0	14.0	0.0	7.0	NA	NA
- Waste Disposal	\$1.33	· \$1.27	\$0.78	\$1.52	<u>NA</u>	<u>N</u> A
Subtotal- End of Day/Trip Srvc	\$37.66	\$33.67	\$72.98	\$17.84	NA	NA
Train Delay:						
- Pump out volume req'd	0	54	0	27	NA	NA
- # of stops reg'd	0	1	0	1	NA	NA
- Pump out minutes	0.0	0.9	0.0	0.5	NA	NA
- Connect/Disc. minutes	0.0	14.0	0.0	<u>7.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)		15	0	7	NA	NA
Average Cost Per Delay	\$0	\$9	\$0	\$4	· NA	NA
Subtotal- Opring Trip Related	\$38	\$43	\$73	\$22	NA	NA.
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	26,572	6,132	19,856	1,752	NA	NA
Days per Trip (min. of 1)	2	2	2	<u>2</u>	2	<u>2</u>
Annual Oprtng Trip Related per Car	\$5,499	\$6,222	\$10,655	\$3,257	NA	NA
Annual Non-Trip Related per Car	\$7,887	\$5,258 ·	\$15,774	\$2,629	NA	'NA
Annual Opring Trip Related per Car Type	\$500,405	\$130,655	\$724,508		NA	NA
Annual Non-Trip Related per Car Type	<u>\$717,717</u>	<u>\$110,418</u>	<u>\$1,072,632</u>	<u>\$15,774</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$13,386	\$11,480	\$26,429	\$5,886	NA	NA
Total CAPITAL COST per Car	\$21,228	\$14,152	\$42,456	\$7,076	NA	NA
Total OPRTNG COST for all cars	\$1,218,122	\$241,073	\$1,797,140	\$35,316	NA	N/A

Amtrak Route: Origin/Destination: Sunset Limited Route Number:

New Orleans-Los Angeles Length in Miles:

2,033 Length in Hours: 43.00 Expected Trips per Day: 1

Manufacturer: Microphor Equipment:

Gravity

-1-1	•					
Scenario:	Unfavorable					
* All data on per car basis (unless note	d otherwise)				•	
	34000	39940	32000	39970	NA NA	NA NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)		•				
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	129.0	123.8	75.7	147.9	NA NA	NA
Capacity Req'd/day (gals)	162.7	156.2	95.4	186.5	NA	NA
Adj. Capacity Req'd w/ Buffer	203.3	195.2	119.3	233.2	NA	NA.
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	35 49%	37 5 51%	60 84%	31 5. 43%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.5	1.5	2,5	1.3	· NA	NA
As a percentage of 3 days	49.18%	•		•	NA	NA
Consecutive Trips before pumpout	0.0	0.0	1.0	0.0	NA	NA
CAPITAL COSTS	•					:
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$30,000	\$20,000	\$60,000	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$40,000	\$30,000	\$70,000	\$20,000	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,304	\$1,728	\$4,032	\$1,152	NA	NA
Total Capital Cost	\$42,304	\$31,728	\$74,032	\$21,152	NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033 43.00

Length in Hours: Expected Trips per Day:

Manufacturer:

Microphor

Equipment:

Gravity

Scenario: Unfavorable
\* All data on per car basis (unless noted otherwise)

34000 39940 32000 39970 NA NA Lounge-HEP-HLV Coach Super Coach-HEP-HLV Sleeper Super NA. NA **OPERATING COSTS** Non-Trip Related Costs: \$432 \$288 \$864 \$144 Labor cost/major servicing NA NA Frequency per Year 4 4 4 4 4 4 Servicing Cost/Year \$1,728 \$1,152 \$3,456 \$576 NA NA Annual spare parts cost per yr \$2,000 \$1,500 \$3,500 \$1,000 <u>NA</u> <u>NA</u> Total-Oprtng Non-Trip Related \$3,728 \$2,652 \$6,956 \$1,576 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$36 \$24 \$72 \$12 NA NA \$0 - Light Repair \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.00 \$0.00 \$0.95 \$0.00 NA NA - Pump out minutes 0.00 0.00 1.59 0.00 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA - Waste Disposal \$4.95 \$4.76 \$2.91 \$5.68 NA NA Subtotal- End of Day/Trip Srvc \$28.76 \$75.86 \$17.68 NA \$40.95 NA Train Delay: 300 300 0 300 NA - Pump out volume req'd NA - # of stops req'd Ó NA NA 1 1 1 - Pump out minutes 5.0 5.0 0.0 5.0 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 <u>NA</u> NA - Total Time Delay(mins/car) 5 5 0 5 NA NA Average Cost Per Delay \$3 \$3 \$0 \$3 -NA NA Subtotal-Oprtng Trip Related \$44 \$32 \$76 \$21 NΑ NA 6 Total # Cars in fleet 91 21 68 NA NA Total Annual Car-days 33,215 7,665 24,820 2,190 NΑ NA Adjusted Total Car-days 26,572 6,132 19,856 1,752 NA NA Days per Trip (min. of 1) 2 2 2 2 2 Annual Opring Trip Related per Car \$6,417 \$4,636 \$11,076 \$3,020 NA NA Annual Non-Trip Related per Car \$3,728 \$2,652 \$6,956 \$1,576 NA NA Annual Opring Trip Related per Car Type \$583,984 \$97,366 \$753,150 \$18,117 NA NA Annual Non-Trip Related per Car Type \$339,248 \$55,692 \$473,008 \$9,456 <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$10,145 \$4,596 NΑ \$7,288 \$18,032 NA Total CAPITAL COST per Car \$42,304 \$31,728 \$74,032 \$21,152 NA NA Total OPRTNG COST for all cars NA \$923,232 \$153,058 \$1,226,158 \$27,573 NA Total CAPITAL COST for all cars \$3,849,664 \$666,288 \$5,034,176 \$126,912 ΝÁ

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Total Capital Cost

1

Manufacturer:

Evac

Equipment:	Ultimate		*	•		
• •						
Scenario:	Unfavorable		.=			
* All data on per car basis (unless noted	34000	39940	32000	39970	NA	. NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	NA NA	NA NA
Quantity of cars	4	1	3	1	NA NA	· NA
Capacity (# people) - seated	75	72	44	86	NA	· NA
Toilets per car	6	4	12	2	NA ·	NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
•		•				
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	. 35.3	33.8	20.7	40.4	NA .	NA
Capacity Req'd/day (gals)	68.9	66.2	40.4	79.0	NA	NA
Adj. Capacity Req'd w/ Buffer	86.2	82.7	50.5	98.8	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	·· 200
Continuous Service Hours Supported As a percentage of 72 hours	56 <b>7</b> 7%	58 81%	95 132%	49 67%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.3	2.4	4.0	2.0	NA	NA
As a percentage of 3 days	77.38%	80.60%	131.90%	67.48%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$17,400	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$5,800</u>	. <u>NA</u>	<u>NA</u>
- Total Equip Cost	\$29,400	\$23,600	\$46,800	\$17,800	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1.728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	· <u>NA</u>	<u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
	Anc ====	000 100	ME4 000	M40 040	A 1 A	414

\$26,192

\$51,696

\$32,568

\$19,816

NA

NA

Sunset Limited

Route Number:

Origin/Destination:

Length in Miles: Length in Hours: New Orleans-Los Angeles 2,033

43.00

Expected Trips per Day:

Manufacturer: Equipment:

Evac Ultimate

Unfavorable

Scenario: \* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted ot	herwise)		,			
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS						
Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	4	4	4	4	4	<u>4</u>
Servicing Cost/Year	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Annual spare parts cost per yr	<u>\$1,470</u>	\$1,18 <u>0</u>	<u>\$2,340</u>	<u>\$890</u>	<u>NA</u>	<u>NA</u>
Tetal- Oprtng Non-Trip Related	\$3,198	\$2,332	\$5,796	\$1,466	NA NA	NA NA
Trip Related Costs:						
Tallot maintenance enroute						
End of Day/Trip Servicing					•	
- Clea <b>ning</b>	\$36	\$24	\$72	\$12	NA	NA
- Ligh <b>t Repair</b>	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•					
- Pump out Cost	\$0.69	\$0.66	\$0.40	\$0.79	NA	. NA
- Pump out minutes	1.15	1.10	0.67	1.32	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Maste Disposal	<u>\$2.10</u>	<u>\$2.02</u>	<u>\$1,23</u>	<u>\$2.41</u>	<u>NA</u>	<u>NA</u>
Self-total- End of Day/Trip Srvc	\$38.79	\$26.68	\$73.64	\$15.20	. NA	NA
Train Delay:						
- Dump out volume req'd	0	0	0	0	· NA	NA
- # of stops req'd	0	0	0	=	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	. <u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	. 0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Suit total- Oprtng Trip Related	\$39	\$27	\$74	\$15	NA NA	NA NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	26,572	6,132	19,856	1,752	NA	NA
Days per Trip (min. of 1)	2	<u>2</u>	2	2	2	2
		-	_	_	_	_
Annual Opring Trip Related per Car	\$5,663	\$3,895	\$10,751	\$2,219	NA	NA
Animal Non-Trip Related per Car	\$3,198	\$2,332	\$5,796	\$1,466	NA	NA
Appeal Opring Trip Related per Car Type	\$515,345	\$81,792	\$731,058	\$13,313	NA	NA
Anstral Non-Trip Related per Car Type	<u>\$291,018</u>	<u>\$48,972</u>	\$394,128	<u>\$8.796</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$8,861	\$6,227	\$16,547	- \$3,685	NA	NA
Total CAPITAL COST per Car	\$32,568	\$26,192	\$51,696	\$19,816	NA ·	NA
Total OPRING COST for all cars	\$806,363	\$130,764	\$1,125,186	\$22,109	NA	NA NA
Tetal CAPITAL COST for all cars	\$2,963,688	\$550,032	\$3,515,328	\$118,896	NA	NA

Sunset Limited

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

1

Manufacturer: Equipment:

Railtech

WTS 8300

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

, in data on per dar basis (unless hotes	34000 Coach Super	39940 Coach-HEP-HLV	32000 <u>Sleeper Super</u>	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	4	1	3	1	NA	. NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	197.4	189.5	115.8	226.3	. NA	NA
Capacity Req'd/day (gals)	231.0	221.8	135.5	264.9	NA	NA
Adj. Capacity Req'd w/ Buffer	288.8	277.3	169.4	331.2	NA	- NA
Tank Capacity per Car (gals)	150	100	300	100	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	12 17%	9 12%	42 59%	, 7 10%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	0.5	0.4	1.8	0.3	NA	NA
As a percentage of 3 days	17.31%	12.02%	59.02%	10.07%	NA	NA
Consecutive Trips before pumpout	0.0	0.0	0.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$8,000	\$24,000	\$8,000	NA	. NA
Toilet Cost per Car	<u>\$18,000</u>	\$12,000	\$36,000	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$30,000	\$20,000	\$60,000	\$14,000	NA	NA
Equipment Installation						
Collection System per Car	\$864	\$576	\$1,728	\$576	NA	NA
Toilet Cost per Car	<u>\$1.728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$1,728	\$5,184	\$1,152	NA	NA
Total Capital Cost	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA NA

Sunset Limited

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033

Length in Hours: Expected Trips per Day: 43.00

Manufacturer:

Equipment:

Railtech

Scenario:

WTS 8300 Unfavorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of		20040	20000	00070	514	
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA NA
OPERATING COSTS	Oddin odpo.	<u> </u>	Stocket Gabat	Estingo Fier Fier	147	144
Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	4	<u>4</u>	4	<u>4</u>	<u>4</u>	· <u>4</u>
Servicing Cost/Year	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Annual spare parts cost per yr	<u>\$1,500</u>	\$1,000	<u>\$3,000</u>	<u>\$700</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$3,228	\$2,152	\$6,456	\$1,276	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72		NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0.	\$0
Pump out and Disposal						
- Pump out Cost	\$7.11	\$5.42	\$12.60	\$5.85	NA	NA
- Pump out minutes	1.35	2.03	0.00	2.75	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	1.0.5	7.0	21.0		NA	NA
- Waste Disposal	<u>\$7.04</u>	<u>\$6.76</u>	<u>\$4.13</u>	<u>\$8.07</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$50.15	\$36.17	\$88.73	\$25.92	NA	NA
Train Delay:						
- Pump out volume req'd	150	100	300		NA	NA
- # of stops req'd	1	1	1	1	NA	ŇA
- Pump out minutes	2.5	1.7	5.0	1.7	NA -	NA
- Connect/Disc. minutes	<u>10.5</u>	<u>7.0</u>	<u>21.0</u>	<u>7.0</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	13	9	26	9	· NA	NA
Average Cost Per Delay	\$8	\$5	\$16	•	NA	NA
Subtotal- Opring Trip Related	\$58	\$41	\$104	\$31	NA NA	NA NA
Total # Cars in fleet	91	21	68	6	NA	. NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	26,572	6,132	19,856	1,752	NA	NA
Days per Trip (min. of 1)	2	<u>2</u>	2	2	2	· <u>2</u>
Annual Opring Trip Related per Car	\$8,460	\$6,041	\$15,232	\$4,543	NA	NA
Annual Non-Trip Related per Car	\$3,228	\$2,152	\$6,456	\$1,276	NA	NA
Annual Opring Trip Related per Car Type	\$769,892	\$126,852	\$1,035,773	\$27,260	NA	NA
Annual Non-Trip Related per Car Type	\$293,748	<u>\$45,192</u>	<u>\$439,008</u>	<u>\$7,656</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$11,688	\$8,193	\$21,688	\$5,819	NA	NA
Total CAPITAL COST per Car	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA
Total OPRTNG COST for all cars	\$1,063,640	\$172,044	\$1,474,781	\$34,916	NA NA	NA
Total CAPITAL COST for all cars	\$2,965,872	\$456,288	\$4,432,512	\$90,912	NA NA	NA

C4.2 California Zephyr, Chicago-Oakland

Amtrak Route: California Zephyr Route Number:
Origin/Destination: Chicago-Oakland
Length in Miles: 2,422
Length in Hours: 51.17
Expected Trips per Day: 1
Manufacturer: Monogram
Equipment: Modified Vacuum

—¬¬						
Scenario:	Unfavorable					
* All data on per car basis (unless noted	d otherwise)					
	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated Toilets per car	40 4	44 12	78 5	75 6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)						
Black Water:					•	•
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NĀ	NA
# Flushes/Person-day	, 8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	25.2	27.7	49.1	47.3	NA	NA
Capacity Req'd/day (gals)	43.2	47.5	84.2	80.9	NA NA	NA
Adj. Capacity Req'd w/ Buffer	54.0	59.3	105.2	101.2	· NA	, NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	105 145%	95 132%	54 6 74%	56 77%	NA NA	NA NA
Probable Service Hours per Day	. 24	24	24	24	24	24
Service Days Supported	4.4	4.0	2.2	2.3	NA	NA
As a percentage of 3 days	145.20%	132.00%	6 74.46%	77.44%	NA	NA
Consecutive Trips before pumpout	2.0	1.0	1.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$10,000</u>	\$30,000	<u>\$12,500</u>	<u>\$15,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$31,000	\$51,000	\$33,500	\$36,000	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3.456</u>	<u>\$1.440</u>	<u>\$1.728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$4,896	\$2,880	\$3,168	NA	NA
Total Capital Cost	\$33,592	\$55,896	\$36,380	\$39,168	NA	NA

#5-6

Amtrak Route: Origin/Destination:	California Zephyr Chicago-Oakland		Route Number:	#5-6		
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Monogram			•		*
Equipment:	Modified Vacuum			i.	•	
Scenario:	Unfavorable		•			
* All data on per car basis (unless noted of						
7 iii dala on por dai babio (dinoco notos o	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	NA NA	NA
OPERATING COSTS Non-Trip Related Costs:		•			<u> </u>	
Labor cost/major servicing	\$288	\$864	\$360	\$432	· NA	NA
Frequency per Year	<u>4</u>	4	· <u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA
Annual spare parts cost per yr	\$1,55 <u>0</u>	\$2,5 <u>50</u>	\$1,675	\$1,800	<u>NA</u>	NA
Total- Opring Non-Trip Related	\$2,702	\$6,006	\$3,115	\$3,528	NA	NA
				· · · · · ·		***************************************
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$Q	. \$0	\$0	\$0	\$0
Pump out and Disposal	ΨΟ	Ψο	ΨΟ	ΨΟ	ΨΟ	ψο
- Pump out Cost	\$0.43	\$0.47	\$0.84	\$0.81	NA	NA
	0.72	0.79	1.40	1.35	ŇA	NA NA
- Pump out minutes - Connect/Disc. minutes				0.0	NA NA	NA NA
	0.0	0.0	0.0			
- Waste Disposal	\$1.56	<u>\$1.72</u>	\$3.05	\$2.9 <u>3</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$26.00	\$74.20	\$33.89	\$39.74	NA	NA
Train Delay:	-	_	_	_		
- Pump out volume req'd	0	0	0	0	NA	, NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA.	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$26	\$74	\$34	\$40	NA NA	NA NA
Total # Cars in fleet	36	68	. 48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	NA
Days per Trip (min. of 1)	3	3	3	3	3	3
Annual Opring Trip Related per Car	\$2,530	\$7,222	\$3,299	\$3,868	NA	NA
Annual Non-Trip Related per Car	\$2,702	\$6,006	\$3,115	\$3,528	NA NA	NA NA
, and a rion in product per out	<b>42</b> ,7 02	\$0,000	ψο,σ	40,020		. 147
Annual Oprtng Trip Related per Car Type	. \$91,090	\$491,076	\$158,344	\$352,012	NA	, NA
Annual Non-Trip Related per Car Type	<u>\$97.272</u>	\$408,408	<u>\$149,520</u>	<u>\$321,048</u>	<u>NA</u>	NA
Total OPRTNG COST per Car	\$5,232	\$13,228	\$6,414	·\$7,396	NA	NA
Total CAPITAL COST per Car	\$33,592	\$55,896	\$36,380	\$39,168	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$188,362 \$1,209,312	\$899,484 \$3,800,928	\$307,864	\$673,060 \$3,564,288	NA NA	NA NA

Amtrak Route: Origin/Destination:	California Zephyr Chicago-Oakland		Route Number:	#5-6		
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc		•			
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	therwise)					
	39900 Trans Dorm Coach	32000 <u>Sleeper Super</u>	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	· NA <u>NA</u>
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated Toilets per car	40 4	44 12	78 5	75 6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0,0	NA	NA
Capacity Req'd/day (gals)	18.0	19.8	35.0	33.7	NA	· NA
Adj. Capacity Req'd w/ Buffer	22.5	24.7	43.8	42.1	NA	NA
Tank Capacity per Car (gals)	54	162	67.5	81	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	58 80%	157 219%	37 51%	46 64%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.4	6.6	1.5	1.9	NA	NA .
As a percentage of 3 days	80.18%	218.67%	51.40%	64.14%	NA	NA
Consecutive Trips before pumpout	1.0	3.0	0.0	0.0	NA	NA
CAPITAL COSTS		•				
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$13,000</u>	\$39,000	<u>\$16,250</u>	<u>\$19,500</u>	<u>NA</u>	<u> NA</u>
- Total Equip Cost	\$13,000	\$39,000	\$16,250	\$19,500	NA	NA
Equipment Installation					•	
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1,440</u>	<u>\$1,728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA
Total Capital Cost	\$14,152	\$42,456	\$17,690	\$21,228	NA_	NANA

Amtrak Route: California Zephyr Route Number: Origin/Destination: Chicago-Oakland Length in Miles: 2,422

Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Monogram

Equipment: Self-Cont'd Recirc Unfavorable Scenario:

* All data on per car basis (unless noted of	otherwise)					
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
OPERATING COSTS		<u> </u>	<u> </u>			<u></u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$4,608	\$13,824	\$5,760	\$6,912	NA ·	NA
Annual spare parts cost per yr	<u>\$650</u>	<u>\$1,950</u>	<u>\$813</u>	<u>\$975</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$5,258	\$15,774	\$6,573	\$7,887	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24.	· \$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	.\$0
Pump out and Disposal	,-	•-	, -	• •	•	•
- Pump out Cost	\$0.18	\$0.20	\$10.50	\$12.60	NA	NA
- Pump out minutes	0.30	0.33	0.00	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	17.5	21.0	NA	NA
- Waste Disposal	\$0.84	\$0.93	\$1.64	<u>\$1.58</u>	<u>NA</u>	NA
Subtotal- End of Day/Trip Srvc	\$25.02	\$73.12	\$42.14	\$50.18	NA	. NA
Train Delay:	,	******	<b>V</b>	******	*	
- Pump out volume req'd	0	0	68	81	NA	NA
- # of stops reg'd	0	0	1	1	NA	NÁ
- Pump out minutes	0.0	0.0	1.1	1,4	. NA	NA
- Connect/Disc. minutes	0.0	0.0	17.5	21.0	NA NA	NA
- Total Time Delay(mins/car)	0	0	19	22	NA NA	NA NA
Average Cost Per Delay	\$0	\$0	\$11	\$13	NA	NA
Subtotal- Opring Trip Related	\$25	\$73	\$53	\$64	NA	NA
Total # Cars in fleet	. 36	68	48	91	NA	. NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	3	<u>3</u>	<u>3</u>	<u>3</u>
Annual Oprtng Trip Related per Car	\$2,435	\$7,117	\$5,190	\$6,189	. NA	NA
Annual Non-Trip Related per Car	\$5,258	\$15,774	\$6,573	\$7,887	NA	NA
Annual Oprtng Trip Related per Car Type	\$87,677	\$483,985	\$249,100	\$563,234	NA	NA
Annual Non-Trip Related per Car Type	<u>\$189.288</u>	\$1.072.632	<u>\$315,480</u>	<u>\$717,717</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,693	\$22,891	\$11,762	\$14,076	NA	NA
Total CAPITAL COST per Car	\$14,152	\$42,456	\$17,690	\$21,228	NA	NA
Total OPRTNG COST for all cars	\$276,965	\$1,556,617	\$564,580	\$1,280,951	NA	NA NA
Total CAPITAL COST for all cars	\$509,472	\$2,887,008	\$849,120	\$1,931,748	NA	NA

Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Microphor Manufacturer: Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 39900 32000 31000 34000 NA Bag Coach Super Trans Dorm Coach Sleeper Super Coach Super <u>NA</u> <u>NA</u> Quantity of cars 1 3 3 5 NA NA Capacity (# people) - seated 40 78 75 44 NA NA 12 NA Toilets per car 5 6 NA Average persons/toilet on train 10.0 3.7 15.6 12.5 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 17.96 19.76 35.02 33.68 NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 68.8 75.7 134.2 129.0 NA NA 86.8 Capacity Req'd/day (gals) 95.4 169.2 162.7 NA NA Adj. Capacity Req'd w/ Buffer 108.5 119.3 211.5 203.3 NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 66 60 35 NA 34 NA NA As a percentage of 72 hours 92% 84% 47% 49% NA Probable Service Hours per Day 24 24 24 24 24 24 Service Days Supported 2.8 2.5 1.4 1.5 NA NA As a percentage of 3 days 92.21% 83.83% 47.29% 49.18% NA NA Consecutive Trips before pumpout 1.0 1.0 0.0 0.0 NA NA CAPITAL COSTS Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$20,000 \$60,000 \$25,000 \$30,000 <u>NA</u> <u>NA</u> - Total Equip Cost \$30,000 \$70,000 \$35,000 \$40,000 NA NA Equipment Installation \$576 \$576 \$576 Collection System per Car \$576 \$576 \$576 Toilet Cost per Car \$3,456 \$1,152 \$1,440 \$1,728 <u>NA</u> <u>NA</u> - Total Installation Cost \$1,728 \$4,032 \$2,016 \$2,304 NA NA

Route Number:

#5-6

California Zephyr

\$31,728

Amtrak Route:

**Total Capital Cost** 

\$74,032

\$37,016

\$42,304

NA

NA

Zephyr

#5-6

Route Number:

Chicago-Oakland

2,422

Length in Miles: Length in Hours:

51.17

Expected Trips per Day:

.

Manufacturer:

Microphor Gravity .

Equipment: Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data off per car basis (diffess flored o	39900 <u>Trans Dorm</u> Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:	Trails Bollin Godon	<u>Greeper Guper</u>	Day Coacii Cuper	OCASH Guper	13/3	147
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	4	4	<u>4</u>	<u>4</u>	4	<u>4</u>
Servicing Cost/Year	\$1,152	\$3,456	<del>-</del>	\$1,728	NA	NA
Annual spare parts cost per yr	\$1,500	\$3,500	<u>\$1,750</u>	\$2,000	<u>NA</u> -	• <u>NA</u>
Total- Opring Non-Trip Related	\$2,652	\$6,956	\$3,190	\$3,728	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		,				
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.87	\$0.95	\$0.00	\$0.00	NA .	NA
- Pump out minutes	1.45	1.59	0.00	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$3.14</u>	<u>\$3.46</u>	<u>\$6.13</u>	<u>\$5.90</u>	<u>NA</u> :	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$28.01	\$76.41	\$36.13	\$41.90	NA	NA
Train Delay:				*		
<ul> <li>Pump out volume req'd</li> </ul>	0	0	300	300	NA	NA
- # of stops req'd	0	0	1	1	NA	NA
- Pump out minutes	0.0	0.0	5.0	5.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	* <u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	5	5	NA	NA
Average Cost Per Delay	\$0	\$0	\$3	\$3	NA	NA
Subtotal- Oprtng Trip Related	\$28	\$76	\$39	\$45	NA NA	NA NA
Total # Cars in fleet	36	- 68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA'	NA
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	. NA
Days per Trip (min. of 1)	. 3	<u>3</u>	<u>3</u>	<u>3</u>	3	<u>3</u>
Annual Oprtng Trip Related per Car	\$2,727	\$7,438	\$3,809	\$4,370	NA	NA <sub>.</sub>
Annual Non-Trip Related per Car	\$2,652	\$6,956	\$3,190	\$3,728	NA	NA
Annual Oprtng Trip Related per Car Type	\$98,155	\$505,755	\$182,825	\$397,661	NA	NA
Annual Non-Trip Related per Car Type	<u>\$95,472</u>	\$473,008	<u>\$153,120</u>	<u>\$339,248</u>	<u>NA</u>	. <u>NA</u>
Total OPRTNG COST per Car-	\$5,379	\$14,394	\$6,999	\$8,098	NA	NA
Total CAPITAL COST per Car	\$31,728	\$74,032	\$37,016	\$42,304	NA	NA
Total OPRTNG COST for all cars	\$193,627	\$978,763	\$335,945	\$736,909	NA	NA
Total CAPITAL COST for all cars	\$1,142,208	\$5,034,176	\$1,776,768	\$3,849,664	NA	NA

Amtrak Route:	California Zephyr		Route Number:	<b>#5-6</b>		
Origin/Destination:	Chicago-Oakland					
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1				-	
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Unfavorable					
* All data on per car basis (unless noted	otherwise)					
, ii, dana on par am a maio (ani-aa a a a a	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u> N</u> A	<u>NA</u>
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated	40	44	78	75	NA	. NA
Toilets per car	4	12	5	6	NA	NA
Average persons/toilet on train	10,0	3.7	15.6	12.5	'NA	NA
	•		•	•	•	
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
.# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.047	0.047	0,047	0.047	0.047	0.047
Flush Fluids/day (gals)	18.8	20.7	36.7	35.3	NA	NA
•						
Capacity Req'd/day (gals)	36.8	40.4	· 71.7	68.9	NA	NA
Adj. Capacity Req'd w/ Buffer	46.0	50.5	89.6	86.2	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Outline on Outline Commented	404	05	54	56	· NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	. 104 145%	95 132%			NA NA	NA NA
710 II porosinago en v <b>a</b> insere						
Probable Service Hours per Day	. 24	24	24	. 24	24	24
1 100abio Osivios 1 iosis poi osaj						
Service Days Supported	4.4	4.0	2.2	2.3	NA	NA
As a percentage of 3 days	145.09%	131.90%			NA	NA
Consecutive Trips before pumpout	2.0	1.0	1.0	1.0	NA	NA
value of the same party and the						
CAPITAL COSTS	•					
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$11,600	\$34,800	\$14,500	\$17,400	<u>NA</u>	NA
- Total Equip Cost	\$23,600	\$46,800		\$29,400	NA	NA
Equipment Installation		, ,,,,,	. ,	•		
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	\$1,152	\$3,456		\$1.728	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$4,896		\$3,168	NA	NA
Total Capital Cost	\$26,192	\$51,696		\$32,568	NA	NA
· · - · - · - · - ·						<del></del>

Amtrak Route:	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland					
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Unfavorable				9	
* All data on per car basis (unless noted of	otherwise)				•	
/ III 2012 611 per 322 2000 (611120 101120 1	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA
Annual spare parts cost per yr	<u>\$1,180</u>	\$2,340	. \$1,32 <u>5</u>	<u>\$1,470</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$2,332	\$5,796	\$2,765	\$3,198	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing			•			
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.37	\$0.40	\$0.72	\$0.69	NA	NA
- Pump out minutes	0.61	0.67	1.19	1.15	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA.
- Waste Disposal	<u>\$1.33</u>	\$1.47	\$2.60	\$2.50	<u>NA</u> ~	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$25.70	\$73.87	\$33.31	\$39.19	NA:	NA
Train Delay:		•	•			
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	, 0	0	0	. 0	NA	NA
- Pump out minutes	. 0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$26	. \$74	\$33	\$39	NA .	NA
Cabicial Opining 114 Holaica	420					•
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NĄ,	NA
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Oprtng Trip Related per Car	\$2,501	\$7,190	\$3,243	\$3,814	NA	: NA
Annual Non-Trip Related per Car	\$2,332	\$5,796	\$2,765	\$3,198	NA	NA
Annual Oprtng Trip Related per Car Type	\$90,053	\$488,921	\$155,648	\$347,096	. NA	NA
Annual Non-Trip Related per Car Type	\$83,952	\$394,128	\$132,720	\$291,018	NA	NA
Total OPRTNG COST per Car	\$4,833	\$12,986	\$6,008	\$7,012	NA	NA
Total CAPITAL COST per Car	\$26,192	\$51,696	\$29,380	\$32,568	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$174,005 \$942,912	\$883,049 \$3,515,328	\$288,368 \$1,410,240	\$638,114 \$2,963,688	NA NA	NA NA

Amtrak Route:	California Zephyr		Route Number:	#5-6	•	
Origin/Destination: Length in Miles:	Chicago-Oakland 2,422					
Length in Hours:	51.17					
Expected Trips per Day:	31.17					
Manufacturer:	Railtech			•		
Equipment:	WTS 8300			4.		
Scenario:	Unfavorable					
* All data on per car basis (unless noted of					3	
The data of por our basis (arrioss force t	39900 .	32000	31000	34000	NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	NA NA	NA NA
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated	40	44	78	75	NA	NA
Toilets per car	4	12	5	6	NA	NA
Average persons/toilet on train	10.0	3.7	15.6 ,	12.5	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	105.3	115.8	205.3	197.4	.NA	NA
Capacity Req'd/day (gals)	123.2	135.5	240.3	231.0	NA	NA NA
Adj. Capacity Req'd w/ Buffer	154.0	169.4	300.4	288.8	NA	NA
Tank Capacity per Car (gals)	100	300	150	150	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	16 22%	<b>42</b> 59%	12 6 17%	12 17%	NA NA	NA NA
Probable Service Hours per Day	24	24	24 -	24	24	24
Service Days Supported	0.6	1.8	0.5	0.5	NA	NA
As a percentage of 3 days	21.64%	59.02%	6 16.65%	17.31%	NA	NA
Consecutive Trips before pumpout	0.0	0.0	0.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$24,000	\$12,000	\$12,000	NA	NA
Toilet Cost per Car	<u>\$12,000</u>	\$36,000	<u>\$15,000</u>	<u>\$18,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$60,000	\$27,000	\$30,000	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$1,728	\$864	\$864	NA	NA
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1,440</u>	<u>\$1,728</u>	• <u>NA</u>	NA
- Total Installation Cost	\$1,728	\$5,184	\$2,304	\$2,592	NA	NA
Total Capital Cost	\$21,728	\$65,184	\$29,304	\$32,592	NA NA	NA NA

Amtrak Route: California Zephyr Route Number: Origin/Destination: Chicago-Oakland 2,422 Length in Miles: 51.17 Length in Hours: Expected Trips per Day: Railtech Manufacturer: WTS 8300 Equipment: Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 39900 32000 31000 34000 NA ŇΑ NA NA Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$288 \$864 \$360 \$432 NA NA Frequency per Year 4 4 4 <u>4</u> 4 \$1,440 \$1,728 NA Servicing Cost/Year \$1,152 \$3,456 NA Annual spare parts cost per yr \$3,000 \$1,000 \$1,350 \$1,500 <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$2,152 \$6,456 \$2,790 \$3,228 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning NA \$24 \$72 \$30 \$36 NA. \$0 \$0 \$0 - Light Repair \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$4.43 \$12.60 \$7.20 \$7.11 NA NΑ - Pump out minutes 0.39 0.00 1.50 1.35 NΑ NΑ - Connect/Disc. minutes 7.0 21.0 10.5 10.5 NA NA. - Waste Disposal \$4.47 \$4.91 \$8.71 \$8.37 <u>NA</u> NΑ Subtotal- End of Day/Trip Srvc \$32.90 \$89.51 \$45.91 \$51.48 NA NA Train Delay: 100 300 150 NA - Pump out volume req'd 150 NA - # of stops req'd NA NA 1 1 1 1 - Pump out minutes 1.7 5.0 2.5 2.5 NA NA <u>7.0</u> - Connect/Disc. minutes 21.0 10.5 10.5 <u>NA</u> NA NΑ NA - Total Time Delay(mins/car) 9 26 13 13 Average Cost Per Delay \$5 \$16 \$8 \$8 NA NA Subtotal-Opring Trip Related \$38 \$105 \$54 \$59 NA NA Total # Cars in fleet 36 68 48 91 NA NA Total Annual Car-days 24,820 17,520 33,215 NA 13,140 NA Adjusted Total Car-days 10.512 19.856 14,016 26,572 NA NA Days per Trip (min. of 1) 3 3 3 3 3 3 \$3,708 \$10,231 \$5,228 NA Annual Opring Trip Related per Car \$5,770 NA Annual Non-Trip Related per Car \$2,152 \$6,456 \$2,790 \$3,228 NA NA Annual Opring Trip Related per Car Type \$133,497 \$695,707 \$250,943 \$525,104 NA NA Annual Non-Trip Related per Car Type <u>\$77,472</u> \$439,008 \$133,920 \$293,748 NA <u>NA</u> Total OPRTNG COST per Car \$5,860 \$16,687 \$8,018 \$8,998 NA NA Total CAPITAL COST per Car \$65,184 \$29,304 \$32,592 NA \$21,728 NA Total OPRTNG COST for all cars NA \$384,863 \$818,852 NA \$210,969 \$1,134,715

#5-6

\$1,406,592

\$4,432,512

\$782,208

Total CAPITAL COST for all cars

\$2,965,872

NA

NA

C4.3 City of New Orleans, New Orleans-Chicago

Amtrak Route: Origin/Destination:

Length in Miles:

City of New Orleans

New Orleans-Chicago

924

18.33

Length in Hours: Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Unfavorable

S4000   Horizon   Ceach   HOC2P   Dome Coach   Amilourne III   1   1   1   1   1   1   1   1   1	* All data on per car basis (unless noted otherwise)						
Capacity (# people) - seated         82         48         44         46         49         22           Toilets per car         2         2         3         2         2         17           Average persons/toilet on train         41.0         24.0         14.7         23.0         24.5         1.7           Average persons/toilet on train         41.0         24.0         14.7         23.0         24.5         1.7           Average persons/toilet on train         41.0         24.0         14.7         23.0         24.5         1.7           Average persons/toilet on train         41.0         24.0         14.7         23.0         24.5         1.3           Car Waste Data (per car)         20.6         2.06         2.00         9.88         48 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Toilet Sper car 2 2 2 3 2 2 17  Average persons/toilet on train 41.0 24.0 14.7 23.0 24.5 1.3  Car Waste Data (per car)  Black Water:  Human Waste/day (gals) 36.82 21.55 19.76 20.65 22.00 9.88  # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Quantity of cars	1	4	1	1	1	1
Black Water:							
Black Water:   Human Waste/day (gals)   36.82   21.55   19.76   20.65   22.00   9.88   # Flushes/Person-day   8.00   8.	Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Human Waste/day (gals) 36.82 21.55 19.76 20.65 22.00 9.88 # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Car Waste Data (per car)						
#Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Black Water:						
Flush efficiency adjustment   1.25	Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
Adj. # Flushes/Person-day         10	# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush Fluids/flush (gals) 0.663 0.063 0.063 0.063 0.063 0.063 0.063 0.063 1.5   Flush Fluids/day (gals) 51.7 30.2 27.7 29.0 30.9 13.9   Capacity Req'd/day (gals) 67.6 39.6 36.3 37.9 40.4 18.1   Adj. Capacity Req'd w/ Buffer 84.5 49.4 45.3 47.4 50.5 22.7   Tank Capacity per Car (gals) 235 235 235 235 235 235 235 235   Continuous Service Hours Supported 67 114 124 119 112 249   As a percentage of 72 hours 93% 158% 173% 165% 155% 346%   Probable Service Hours per Day 18.33 18.33 18.33 18.33 18.33 18.33 18.33   Service Days Supported 3.6 6.2 6.8 6.5 6.1 13.6   As a percentage of 3 days 121.42% 207.43% 226.29% 216.45% 203.20% 452.57%   Consecutive Trips before pumpout 3.0 6.0 6.0 6.0 6.0 6.0 13.0   CAPITAL COSTS   Collection System per Car \$21,000 \$21,0	Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Fluish Fluids/day (gals) 51.7 30.2 27.7 29.0 30.9 13.9  Capacity Req'd/day (gals) 67.6 39.6 36.3 37.9 40.4 18.1  Adj. Capacity Req'd w Buffer 84.5 49.4 45.3 47.4 50.5 22.7  Tank Capacity per Car (gals) 235 235 235 235 235 235 235  Continuous Service Hours Supported 67 114 124 119 112 249  As a percentage of 72 hours 93% 158% 173% 165% 155% 346%  Probable Service Hours per Day 18.33 18.33 18.33 18.33 18.33 18.33 18.33  Service Days Supported 3.6 6.2 6.8 6.5 6.1 13.6  As a percentage of 3 days 121.42% 207.43% 226.29% 216.45% 203.20% 452.57%  Consecutive Trips before pumpout 3.0 6.0 6.0 6.0 6.0 6.0 13.0  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Total Equip Cost \$26,000 \$26,000 \$28,500 \$5,000 \$26,000 \$63,500  Equipment Installation  Collection System per Car \$1,440	Adj. # Flushes/Person-day	10	10	10	10	10	10
Capacity Req'd/day (gals) 67.6 39.6 36.3 37.9 40.4 18.1 Adj. Capacity Req'd w Buffer 84.5 49.4 45.3 47.4 50.5 22.7 Tank Capacity per Car (gals) 235 235 235 235 235 235 235 235 235 235	Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Adj. Capacity Req'd w/ Buffer       84.5       49.4       45.3       47.4       50.5       22.7         Tank Capacity per Car (gals)       235       235       235       235       235       235       235       235         Continuous Service Hours Supported As a percentage of 72 hours       67       114       124       119       112       249         As a percentage of 72 hours       93%       158%       173%       165%       155%       346%         Probable Service Hours per Day       18.33       18.	Flush Fluids/day (gals)	51.7	30.2	27.7	29.0	30.9	13.9
Tank Capacity per Car (gals)         235         249           48         207         207         336         158%         173%         165%         155%         1346%         1833         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33 <td>Capacity Req'd/day (gals)</td> <td>67.6</td> <td>39.6</td> <td>36.3</td> <td>37.9</td> <td>40.4</td> <td>18.1</td>	Capacity Req'd/day (gals)	67.6	39.6	36.3	37.9	40.4	18.1
Continuous Service Hours Supported As a percentage of 72 hours 93% 158% 158% 173% 165% 155% 346% Probable Service Hours per Day 18.33 18.3	Adj. Capacity Req'd w/ Buffer	84.5	49.4	45.3	47.4	50.5	
As a percentage of 72 hours 93% 158% 173% 165% 155% 346%  Probable Service Hours per Day 18.33 18.33 18.33 18.33 18.33 18.33 18.33 18.33  Service Days Supported 3.6 6.2 6.8 6.5 6.1 13.6 As a percentage of 3 days 121.42% 207.43% 226.29% 216.45% 203.20% 452.57%  Consecutive Trips before pumpout 3.0 6.0 6.0 6.0 6.0 6.0 13.0  CAPITAL COSTS  Collection System per Car \$21,000 \$	Tank Capacity per Car (gals)	235	235	235	235	235	235
Service Days Supported         3.6         6.2         6.8         6.5         6.1         13.6           As a percentage of 3 days         121.42%         207.43%         226.29%         216.45%         203.20%         452.57%           Consecutive Trips before pumpout         3.0         6.0         6.0         6.0         6.0         6.0         13.0           CAPITAL COSTS           Collection System per Car         \$21,000         \$21	Continuous Service Hours Supported As a percentage of 72 hours						
As a percentage of 3 days 121.42% 207.43% 226.29% 216.45% 203.20% 452.57% Consecutive Trips before pumpout 3.0 6.0 6.0 6.0 6.0 6.0 13.0 CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$55,000 \$55,000 \$55,000 \$55,000 \$63,500 Equipment Installation  Collection System per Car \$1,440 \$1	Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Consecutive Trips before pumpout 3.0 6.0 6.0 6.0 6.0 13.0  CAPITAL COSTS  Collection System per Car \$21,000 \$2	Service Days Supported	3.6	6.2	6.8	6.5	6.1	13.6
CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$5,000 \$5,000 \$26,000 \$2	As a percentage of 3 days	121.42%	207.43%	226.29%	216.45%	203.20%	452.57%
Collection System per Car         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$21,000         \$20,0	Consecutive Trips before pumpout	3.0	6.0	6.0	6.0	6.0	13.0
Toilet Cost per Car         \$5,000         \$5,000         \$7,500         \$5,000         \$5,000         \$42,500           - Total Equip Cost         \$26,000         \$26,000         \$28,500         \$26,000         \$26,000         \$63,500           Equipment Installation         Collection System per Car         \$1,440 <t< td=""><td>CAPITAL COSTS</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	CAPITAL COSTS						
- Total Equip Cost \$26,000 \$26,000 \$28,500 \$26,000 \$26,000 \$63,500 Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$576 \$576 \$864 \$576 \$576 \$4.896 - Total Installation Cost \$2,016 \$2,016 \$2,016 \$2,304 \$2,016 \$2,016	Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Equipment Installation           Collection System per Car         \$1,440	Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$7,500</u>	\$5,000	<u>\$5,000</u>	<u>\$42,500</u>
Collection System per Car         \$1,440	- Total Equip Cost	\$26,000	\$26,000	\$28,500	\$26,000	\$26,000	\$63,500
Toilet Cost per Car         \$576         \$576         \$576         \$864         \$576         \$576         \$4,896           - Total Installation Cost         \$2,016         \$2,016         \$2,304         \$2,016         \$2,016         \$6,336	Equipment Installation						
- Total Installation Cost \$2,016 \$2,016 \$2,304 \$2,016 \$2,016 \$6,336	Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
	Toilet Cost per Car	<u>\$576</u>	* <u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
Total Capital Cost \$28,016 \$28,016 \$30,804 \$28,016 \$28,016 \$69,836	- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
	Total Capital Cost	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836

Route Number:

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago

Length in Hours:

924 18.33

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

。Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted of	54000	4600	4000	9400	28000	2400(30)
•	Horizon	Coach	Coach (HDCP)	Dome Coach	Amiounge II	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:		<del>مجمعت المحمد /del>		<del></del>		
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	4	4	4	4	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$864	\$57 <b>6</b>	\$576	\$4,896
Annual spare parts cost per yr	<u>\$1,300</u>	\$1,300	<u>\$1,425</u>	<u>\$1,300</u>	<u>\$1,300</u>	<u>\$3,175</u>
Total- Opring Non-Trip Related	\$1,876	\$1,876	\$2,289	\$1,876	\$1,876	\$8,071
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	* \$0	\$0	\$0	\$0	\$0
Pump out and Disposal						:
- Pump out Cost	\$0.68	\$0.40	\$0.36	* \$0.38	\$0.40	\$0.18
- Pump out minutes	1.13	0.66	0.60	0.63	0.67	0.30
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$1.15</u>	<u>\$0.67</u>	<u>\$0.62</u>	<u>\$0.64</u>	<u>\$0.69</u>	<u>\$0,31</u>
Subtotal- End of Day/Trip Srvc	\$13.82	\$13.07	\$18.98	\$13.02	\$13.09	\$102.49
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	0	0
- # of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	· \$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Opring Trip Related	\$14	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$4,037	\$3,816	\$5,542	\$3,803	\$3,822	\$29,927
Annual Non-Trip Related per Car	\$1,876	\$1,876	\$2,289	\$1,876	<b>\$1,876</b> -	\$8,071
Annual Opring Trip Related per Car Type	\$415,786	\$297,637	\$116,379	\$45,634	\$95,559	\$2,454,009
Annual Non-Trip Related per Car Type	<u>\$193,228</u>	<u>\$146,328</u>	<u>\$48,069</u>	<u>\$22,512</u>	<u>\$46,900</u>	<u>\$661,822</u>
Total OPRTNG COST per Car	\$5,913	\$5,692	\$7,831	\$5,679	\$5,698	\$37,998
Total CAPITAL COST per Car	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836
Total OPRTNG COST for all cars	\$609,014	\$443,965	\$164,448	\$68,146	\$142,459	\$3,115,831
Total CAPITAL COST for all cars	\$2,885,648	\$2,185,248	\$646,884	\$336,192	\$700 <b>,400</b>	\$5,726,552

Route Number:

City of New Orleans New Orleans-Chicago

Route Number:

#58

Origin/Destination: Length in Miles:

924

Length in Hours:

18.33

Expected Trips per Day:

Manufacturer:

Equipment:

Monogram

Self-Cont'd Recirc

Scenario:

Unfavorable

* All data on per car basis (unless noted otherwise)						
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) <u>Sleeper 10-6</u>
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:	,					
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	. 0.0
Capacity Req'd/day (gals)	28.1	16.5	15.1	15.8	16.8	7.5
Adj. Capacity Req'd w/ Buffer	35.1	20.6	18.9	19.7	21.0	<u>"</u> 9.4
Tank Capacity per Car (gals)	27	27	40.5	27	27	229.5
Continuous Service Hours Supported As a percentage of 72 hours	18 26%	31 44%	52 72%	33 46%	31 43%	584 811%
Probable Service Hours per Day	18.33	18.33	18.33	. 18.33	18.33	18.33
Service Days Supported	1.0	1.7	2.8	1.8	1.7	31.9
As a percentage of 3 days	33.53%	57.27%	93.72%	59.76%	56.10%	1062.14%
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	1.0	31.0
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	. \$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$9,750</u>	<u>\$6,500</u>	<u>\$6,500</u>	\$55,250
- Total Equip Cost	\$6,500	\$6,500	\$9,750	\$6,500	\$6,500	\$55,250
Equipment Installation						
Collection System per Car	. \$0	\$0	\$0	\$0	\$0	* \$O
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$576	\$576	\$864	\$576	\$576	\$4,896
Total Capital Cost	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

w Orleans-Chicago 924

Length in Hours:

18.33

Expected Trips per Day: Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

viii dala ovi por dai basis (dinoco notos ot	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:		<del></del>			<del></del>	<del></del> .
Labor cost/major servicing	\$576	\$576	\$864	\$576	\$576	\$4,896
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$2,304	\$2,304	\$3,456	\$2,304	\$2,304	\$19,584
Annual spare parts cost per yr	<u>\$325</u>	<u>\$325</u>	<u>\$488</u>	<u>\$325</u>	<u>\$325</u>	<u>\$2,763</u>
Total- Oprtng Non-Trip Related	\$2,629	\$2,629	\$3,944	\$2,629	\$2,629	\$22,347
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0 <sup></sup>
Pump out and Disposal						
- Pump out Cost	\$0.28	\$0.16	\$0.15	\$0.16	\$0.17	\$0.08
- Pump out minutes	0.47	0.27	0.25	0.26	0.28	0.13
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.62</u>	<u>\$0.36</u>	<u>\$0.33</u>	<u>\$0.35</u>	<u>\$0.37</u>	<u>\$0.17</u>
Subtotal- End of Day/Trip Srvc Train Delay:	\$12.90	\$12.53	\$18.48	\$12.50	\$12.54	\$102.24
- Pump out volume reg'd	0	. 0	0	0	0	0
- # of stops reg'd	0	0	0	0	0	. 0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Total Time Delay(mins/car)	0			0		
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$13	\$13	\$18	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,767	\$3,658	\$5,397	\$3,651	\$3,661	\$29,854
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$3,944	\$2,629	\$2,629	\$22,347
Annual Opring Trip Related per Car Type	\$387,975	\$285,309	\$113,337	\$43,817	\$91,525	\$2,448,069
Annual Non-Trip Related per Car Type	<u>\$270,787</u>	<u>\$205,062</u>	<u>\$82,814</u>	<u>\$31,548</u>	<u>\$65,725</u>	<u>\$1,832,413</u>
Total OPRTNG COST per Car	\$6,396	ə \$6,287	\$9,340	\$6,280	\$6,290	\$52,201
Total CAPITAL COST per Car	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$658,762 \$728,828	\$490,371 \$551,928	\$196,150 \$222,894	\$75,365 \$84,912	\$157,250 \$176,900	\$4,280,482 \$4,931,972

Route Number:

Amtrak Route: Origin/Destination:

Length in Miles:

City of New Orleans

New Orleans-Chicago

924

Length in Hours: Expected Trips per Day: Manufacturer: 18.33

Manufacturer:

1

Equipment:

Microphor Gravity

Scenario:

Unfavorable

* All data on per car basis (unless noted of	therwise)					
	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated	82	48	44	46	49	22
Toilets per car	2	2	3	2	. 2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
·						
Car Waste Data (per car)						
Black Water:				·		
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0,172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	141.0	82.6	75.7	79.1	84.3	37.8
Capacity Req'd/day (gals)	135.8	79.5	72.9	76.2	81.2	36.4
Adj. Capacity Req'd w/ Buffer	169.8	99.4	91.1	95.3	101.5 -	45.6
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	42 59%	72 101%	79 110%	76 105%	71 99%	158 220%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	2.3	4.0	4.3	4.1	3.9	8.6
As a percentage of 3 days	77.11%	131.73%	143.71%	137.46%	129.04%	287.41%
Consecutive Trips before pumpout	2.0	3.0	4.0	4.0	3.0	8.0
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$15,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	\$85,00 <u>0</u>
- Total Equip Cost	\$20,000	\$20,000	\$25,000	\$20,000	\$20,000	\$95,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$5,472
Total Capital Cost	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472

Route Number:

City of New Orleans

Route Number:

#58

Origin/Destination:

New Orleans-Chicago

Length in Miles:

924

Length in Hours:

18.33

Expected Trips per Day:

Manufacturer: Equipment: Microphor Gravity

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise

* All data on per car basis (unless noted oth	herwise)			•		
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:	•					
Labor cost/major servicing	\$144	\$144	\$216	. \$144	\$144	\$1,224
Frequency per Year	<u>4</u>	<u>4</u>	4	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$864	\$576	\$576	\$4,896
Annual spare parts cost per yr	\$1,000	<u>\$1,000</u>	\$1,2 <u>50</u>	\$1,000	<u>\$1,000</u>	<u>\$4,750</u>
Total- Oprtng Non-Trip Related	\$1,576	\$1,576	\$2,114	\$1,576	\$1,576	\$9,646
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		٠.				
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.36	\$0.80	\$0.73	\$0.76	\$0.81	\$0.36
- Pump out minutes	2.26	1.33	1.21	1.27	1.35	0.61
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$2.31</u>	<u>\$1.35</u>	<u>\$1.24</u>	<u>\$1.30</u>	<u>\$1.38</u>	<u>\$0.62</u>
Subtotal- End of Day/Trip Srvc	\$15.67	\$14.15	\$19.97	\$14.06	\$14.19	\$102.98
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	. 0	0	0	0
<ul><li>- # of stops req'd</li></ul>	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	0.0	. 0.0	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$16	\$14	\$20	\$14	\$14	\$103
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Days per Trip (min. of 1)	, 1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$4,575	\$4,131	\$5,831	\$4,105	\$4,144	\$30,071
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$2,114	\$1,576	\$1,576	\$9,646
Annual Oprtng Trip Related per Car Type	\$471,220	\$322,210	\$122,444	\$49,257	\$103,599	\$2,465,849
Annual Non-Trip Related per Car Type	<u>\$162,328</u>	<u>\$122,928</u>	<u>\$44,394</u>	<u>\$18,912</u>	<u>\$39,400</u>	<u>\$790,972</u>
Total OPRTNG COST per Car	\$6,151	\$5,707	\$7,945	\$5,681	\$5,720	\$39,717
Total CAPITAL COST per Car	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$633,548 \$2,178,656	\$445,138 \$1,649,856	\$166,838 \$555,240	\$68,169 \$253,824	\$142,999 \$528,800	\$3,256,821 \$8,238,704
A residence of the residence of the second o	•				# 200 St. 444, 70 S	

City of New Orleans

Origin/Destination: Length in Miles: Length in Hours: New Orleans-Chicago

924 18.33

1

Expected Trips per Day:

Manufacturer: Equipment:

Evac

Ultimate

Scenario:

Unfavorable

* All data on per car basis (unless noted of	otherwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 . 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:	,			•	•	
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	. 0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	38.5	. 22.6	20.7	21.6	23.0	10.3
Capacity Req'd/day (gals)	57.6	33.7	30.9	32.3	34.4	15.4
Adj. Capacity Req'd w/ Buffer	71.9	42.1	38.6	40.4	43.0.	19.3
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	67 93%	114 158%	124 173%	119 165%	112 155%	249 345%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	3.6	6.2	6.8	6.5	6.1	13.6
As a percentage of 3 days	121.33%	207.27%	226.11%	216.28%	203.04%	452.23%
Consecutive Trips before pumpout	3.0	6.0	6.0	6.0	. 6.0	13.0
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$8,700</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>
- Total Equip Cost	\$17,800	\$17,800	\$20,700	\$17,800	\$17,800	\$61,300
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636
		-,				

Route Number:

Amtrak Route: Origin/Destination: City of New Orleans

New Orleans-Chicago

924 18.33

Length in Hours: Expected Trips per Day:

Length in Miles:

Manufacturer:

Evac Ultimate

Equipment: Scenario:

Unfavorable

OPERATING COSTS Non-Trip Related Costs:  Labor cost/major servicing \$144 \$144 \$216 \$144 \$144 \$1,22 Frequency per Year \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4		54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
Labor cost/major servicing         \$144         \$144         \$216         \$144         \$144         \$1.22           Frequency per Year         4 <th></th> <th><del></del></th> <th></th> <th></th> <th></th> <th></th> <th></th>		<del></del>					
Frequency per Year \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4 \$4	•						
Servicing Cost/Year	· · · · · · · · · · · · · · · · · · ·	\$144	\$144	\$216	\$144	\$144	\$1,22
Annual Sparie parts cost per yr Total- Oprtring Non-Trip Related \$1,466 \$1,466 \$1,899 \$1,035 \$890 \$1,466 \$1,899 \$1,466 \$1,899 \$1,466 \$1,899 \$1,466 \$1,899 \$1,466 \$1,899 \$1,466 \$1,899 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$1,466 \$1,899 \$1,466 \$1		_	_	_		_	4
Total- Opring Non-Trip Related \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$7,965  Trip Related Costs:  Toiler maintenance enroute End of Day/Trip Servicing  - Cleaning \$12 \$12 \$18 \$18 \$12 \$12 \$16  - Light Repair  - Pump out and Disposal  - Pump out minutes 0,96 0,56 0,51 0,54 0,57 0,22  - Connect/Disc. minutes 0,06 0,00 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0	-	\$576	\$576	\$864	\$576	\$576	\$4,896
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing Cleaning \$12 \$12 \$12 \$18 \$18 \$12 \$12 \$16 Cleaning Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0					<u>\$890</u>	<u>\$890</u>	\$3,06 <u>9</u>
Tolled maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$18 \$18 \$12 \$12 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10	Total- Oprtng Non-Trip Related	\$1,466	\$1,466	\$1,899	\$1,466	\$1,466	\$7,96
Tolled maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$18 \$18 \$12 \$12 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10	Trip Related Costs:			•			
- Cleaning	Toilet maintenance enroute	· · · · · · · · · · · · · · · · · · ·					
- Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0		\$12	\$12	\$18	\$12	\$12	\$102
Pump out and Disposal - Pump out Cost \$0.58 \$0.34 \$0.31 \$0.32 \$0.34 \$0.11 - Pump out minutes 0.96 0.56 0.51 0.54 0.57 0.2 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Waste Disposal \$0.98 \$0.57 \$0.53 \$0.55 \$0.58 \$0.28 Subtotal- End of Day/Trip Srvc \$13.55 \$12.91 \$18.83 \$12.87 \$12.93 \$102.4 Train Delay: - Pump out volume req'd 0 0 0 0 0 0 0 0 - # of stops req'd 0 0 0 0 0 0 0 0 - # of stops req'd 0 0 0 0 0 0 0 0 - Pump out minutes 0.0 0 0 0 0 0 0 - Connect/Disc. minutes 0.0 0 0 0 0 0 0 0 - Connect/Disc. minutes 0.0 0 0 0 0 0 0 0 - Connect/Disc. minutes 0.0 0 0 0 0 0 0 0 - Total Time Delay(mins/car) 0 0 0 0 0 0 0 0 - Average Cost Per Delay \$0 \$0.0 \$0.0 \$0.0 - Average Cost Per Delay \$0 \$0.0 \$0.0 \$0.0 - Subtotal- Opring Trip Related \$14 \$13 \$19 \$13 \$13 \$13 - \$10 - Total # Cars in fleet 103 78 21 12 25 8 - Total Annual Car-days 37.595 28.470 7.665 4.380 9.125 29.93 - Adjusted Total Car-days 30.076 22.776 6.132 3.504 7.300 23.94 - Days per Trip (min. of 1) 1 1 1 1 1 1 1 - Annual Opring Trip Related per Car \$3.958 \$3.770 \$5.499 \$3.759 \$3.775 \$29.90 - Annual Opring Trip Related per Car \$1.466 \$1.466 \$1.466 \$1.899 \$1.466 \$1.466 \$7.960 - Annual Opring Trip Related per Car Type \$407.649 \$294.030 \$115.489 \$45.103 \$94.379 \$2.452.27 - Annual Opring Trip Related per Car Type \$407.649 \$294.030 \$115.489 \$45.103 \$94.379 \$2.452.27 - Annual Opring Trip Related per Car Type \$407.649 \$294.030 \$115.489 \$45.103 \$94.379 \$2.452.27 - Annual Opring Trip Related per Car Type \$407.649 \$294.030 \$115.489 \$45.103 \$94.379 \$2.452.27 - Annual Opring Trip Related per Car Type \$407.649 \$294.030 \$115.489 \$45.103 \$94.379 \$2.452.27 - Annual Opring Trip Related per Car Type \$407.649 \$294.030 \$115.489 \$33.879 \$17.592 \$36.650 \$652.60 - Total Opring Trip Related per Car Type \$407.649 \$294.030 \$115.489 \$33.879 \$17.592 \$36.650 \$652.60	- Light Repair	-	· · · · · · · · · · · · · · · · · · ·	•		•	\$0
- Pump out Cost \$0.58 \$0.34 \$0.31 \$0.32 \$0.34 \$0.15 Pump out minutes 0.96 0.56 0.51 0.54 0.57 0.2   - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 0.0   - Waste Disposal \$0.98 \$0.57 \$0.53 \$0.55 \$0.58 \$0.24 \$0.24   - Connect/Disc. minutes   - Pump out volume req'd   - Pump out volume req'd   - Pump out volume req'd   - Pump out minutes   - Pum	- ,	. +**	70	•••	+0	40	•
- Pump out minutes 0.96 0.56 0.51 0.54 0.57 0.2   - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	•	\$0.58	\$0.34	\$0.31	\$0.32	\$0.34	\$0.15
- Connect/Disc. minutes	•					· ·	0.26
- Waste Disposal \$0.98 \$0.57 \$0.53 \$0.55 \$0.58 \$0.24 \$13.55 \$12.91 \$18.83 \$12.87 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$12.93 \$102.45 \$17 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10	•						0.0
Subtotal- End of Day/Trip Srvc         \$13.55         \$12.91         \$18.83         \$12.87         \$12.93         \$102.47           Train Delay:         - Pump out volume req'd         0 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
Train Delay: - Pump out volume req'd 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•			, —			
- Pump out volume req'd 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	· · ·	<b>V10.55</b>	<b>\$12.51</b>	Ψ10.00	Ψ12.01	Ψ12.30	Ψ102.72
-# of stops req'd 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0	n		0	0	(
- Pump out minutes 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	•						Č
- Connect/Disc. minutes	• •						0.0
- Total Time Delay(mins/car) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•						
Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0							<u>9.</u>
Subtotal- Opring Trip Related         \$14         \$13         \$19         \$13         \$13         \$10           Total # Cars in fleet         103         78         21         12         25         8           Total Annual Car-days         37,595         28,470         7,665         4,380         9,125         29,93           Adjusted Total Car-days         30,076         22,776         6,132         3,504         7,300         23,94           Days per Trip (min. of 1)         1	- 1	·					\$0
Total Annual Car-days 37,595 28,470 7,665 4,380 9,125 29,93  Adjusted Total Car-days 30,076 22,776 6,132 3,504 7,300 23,94  Days per Trip (min. of 1) 1 1 1 1 1  Annual Oprting Trip Related per Car \$3,958 \$3,770 \$5,499 \$3,759 \$3,775 \$29,90  Annual Non-Trip Related per Car \$1,466 \$1,466 \$1,466 \$1,466 \$7,96  Annual Oprting Trip Related per Car Type \$407,649 \$294,030 \$115,489 \$45,103 \$94,379 \$2,452,27  Annual Non-Trip Related per Car Type \$150,998 \$114,348 \$39,879 \$17,592 \$36,650 \$652,80  Total OPRTING COST per Car \$5,424 \$5,236 \$7,398 \$5,225 \$5,241 \$37,865	•						\$102
Total Annual Car-days 37,595 28,470 7,665 4,380 9,125 29,93  Adjusted Total Car-days 30,076 22,776 6,132 3,504 7,300 23,94  Days per Trip (min. of 1) 1 1 1 1 1  Annual Oprting Trip Related per Car \$3,958 \$3,770 \$5,499 \$3,759 \$3,775 \$29,90  Annual Non-Trip Related per Car \$1,466 \$1,466 \$1,466 \$1,466 \$7,96  Annual Oprting Trip Related per Car Type \$407,649 \$294,030 \$115,489 \$45,103 \$94,379 \$2,452,27  Annual Non-Trip Related per Car Type \$150,998 \$114,348 \$39,879 \$17,592 \$36,650 \$652,80  Total OPRTING COST per Car \$5,424 \$5,236 \$7,398 \$5,225 \$5,241 \$37,865							
Adjusted Total Car-days 30,076 22,776 6,132 3,504 7,300 23,94  Days per Trip (min. of 1) 1 1 1 1 1 1  Annual Oprtng Trip Related per Car \$3,958 \$3,770 \$5,499 \$3,759 \$3,775 \$29,90  Annual Non-Trip Related per Car \$1,466 \$1,466 \$1,466 \$1,466 \$1,466 \$7,96  Annual Oprtng Trip Related per Car Type \$407,649 \$294,030 \$115,489 \$45,103 \$94,379 \$2,452,27  Annual Non-Trip Related per Car Type \$150,998 \$114,348 \$39,879 \$17,592 \$36,650 \$652,80  Total OPRTNG COST per Car \$5,424 \$5,236 \$7,398 \$5,225 \$5,241 \$37,866	Total # Cars in fleet	103	78	21	12	25	82
Days per Trip (min. of 1)       1       2       9       9       9       9       9       9       9       8       3,759       \$3,775       \$29,90       9       8       1       466       \$1,899       \$1,466       \$1,466       \$7,96         Annual Opring Trip Related per Car Type       \$407,649       \$294,030       \$115,489       \$45,103       \$94,379       \$2,452,27         Annual Non-Trip Related per Car Type       \$150,998       \$114,348       \$39,879       \$17,592       \$36,650       \$652,80         Total OPRTNG COST per Car       \$5,424       \$5,236       \$7,398       \$5,225       \$5,241       \$37,86	Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Annual Oprtng Trip Related per Car \$3,958 \$3,770 \$5,499 \$3,755 \$29,900 Annual Non-Trip Related per Car \$1,466 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$7,960  Annual Oprtng Trip Related per Car Type \$407,649 \$294,030 \$115,489 \$45,103 \$94,379 \$2,452,270  Annual Non-Trip Related per Car Type \$150,998 \$114,348 \$39,879 \$17,592 \$36,650 \$652,800  Total OPRTNG COST per Car \$5,424 \$5,236 \$7,398 \$5,225 \$5,241 \$37,860	Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Annual Non-Trip Related per Car       \$1,466       \$1,466       \$1,899       \$1,466       \$1,466       \$7,96         Annual Opring Trip Related per Car Type       \$407,649       \$294,030       \$115,489       \$45,103       \$94,379       \$2,452,27         Annual Non-Trip Related per Car Type       \$150,998       \$114,348       \$39,879       \$17,592       \$36,650       \$652,80         Total OPRTNG COST per Car       \$5,424       \$5,236       \$7,398       \$5,225       \$5,241       \$37,86	Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Non-Trip Related per Car       \$1,466       \$1,466       \$1,899       \$1,466       \$1,466       \$7,96         Annual Opring Trip Related per Car Type       \$407,649       \$294,030       \$115,489       \$45,103       \$94,379       \$2,452,27         Annual Non-Trip Related per Car Type       \$150,998       \$114,348       \$39,879       \$17,592       \$36,650       \$652,80         Total OPRTNG COST per Car       \$5,424       \$5,236       \$7,398       \$5,225       \$5,241       \$37,86	Annual Oprtng Trip Related per Car	\$3,958	\$3,770	\$5,499	\$3,759	\$3,775	\$29,906
Annual Non-Trip Related per Car Type         \$150.998         \$114,348         \$39.879         \$17.592         \$36,650         \$652,80           Total OPRTNG COST per Car         \$5,424         \$5,236         \$7,398         \$5,225         \$5,241         \$37,86					•	•	\$7,961
Annual Non-Trip Related per Car Type \$150.998 \$114.348 \$39.879 \$17.592 \$36.650 \$652.80  Total OPRTNG COST per Car \$5,424 \$5,236 \$7,398 \$5,225 \$5,241 \$37,86	Annual Oprtng Trip Related per Car Type	\$407.649	\$294.030	\$115.489	\$45.103	\$94.379°	\$2,452,27
	, - , , ,,			• •		• •	\$652,802
	Total OPRING COST per Car	` <b>¢</b> E	<b>¢</b> £ 22¢	¢7 300	<b>\$</b> E 225	\$E 0/4	\$27 OC
	•	· · · · · · · · · · · · · · · · · · ·					
	Total On Tine Cool per Cal	<b>\$19'010</b>	\$19,616	<b>⊅</b> ∠3,004	\$19,010	, \$18,816	φ07,b3t

#58

Route Number:

Amtrak Route: Origin/Destination:

City of New Orleans

New Orleans-Chicago 924

Length in Miles: Length in Hours: Expected Trips per Day:

18.33 1

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data off per car basis (directs flored o	54000 Horizon	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated	82	48	44	46	49	22
Toilets per car	. 2	2	3	. 2	2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	215.8	126.3	115.8	121.1	128.9	57.9
Capacity Req'd/day (gals)	192.9	112.9	103.5	108.2	115.3	51.8
Adj. Capacity Req'd w/ Buffer	241.2	141.2	129.4	135.3	144.1.	
Tank Capacity per Car (gals)	100	100	100	100	100	450
Continuous Service Hours Supported As a percentage of 72 hours	10 14%	17 24%	19 26%	18 25%	17 23%	167 232%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	0.5	0.9	1.0	1.0	0.9	9.1
As a percentage of 3 days	18.10%	30.92%	33.73%	32.26%	30.29%	303.55%
Consecutive Trips before pumpout	0.0	0.0	1.0	0,0	0.0	9.0
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$36,000
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$9,000</u>	\$6,00 <u>0</u>	<u>\$6,00</u> 0	<u>\$51,000</u>
- Total Equip Cost	\$14,000	\$14,000	\$17,000	\$14,000	\$14,000	\$87,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$2,592
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$7,488
Total Capital Cost	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488

Route Number:

City of New Orleans

Origin/Destination:

New Orleans-Chicago

Length in Miles: Length in Hours: 924

Expected Trips per Day:

18.33

Manufacturer:

Railtech

Equipment: Scenario:

WTS 8300

Unfavorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	54000	4600	4000	9400	28000	2400(30)
OPERATING COSTS	<u>Horizon</u>	<u>Coach</u>	Coach (HDCP)	Dome Coach	Amlounge II	Sleeper 10-6
Non-Trip Related Costs:						*
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>4</u>	4	<u>4</u>	<u>4</u>	4	4
Servicing Cost/Year	\$576	\$576	\$864	\$576	\$576	\$4,896
Annual spare parts cost per yr	<u>\$700</u>	<u>\$700</u>	<u>\$850</u>	<u>\$700</u>	<u>\$700</u>	<u>\$4,350</u>
Total- Oprtng Non-Trip Related	\$1,276	\$1,276	\$1,714	\$1,276	\$1,276	\$9,246
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing	,					
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	<b>4-</b>	<b>V-</b>	•	**	***	<b>4-</b>
- Pump out Cost	\$5.13	\$4.33	\$1.04	\$4.28	\$4.35	\$0.52
- Pump out minutes	1.55	0.22	1.73	0.14	0.25	0.86
- Connect/Disc. minutes	7.0	7.0	0.0	7.0	7.0	0.0
- Waste Disposal	\$3.28	\$1.92	\$1.7 <u>6</u>	\$1. <u>84</u>	\$1.96	\$0.88
Subtotal- End of Day/Trip Srvc	\$20.41	\$18.25	\$20.80	\$18,12	\$18.31	\$103.40
Train Delay:				,		•
- Pump out volume reg'd	100	100	0	100	100	0
- # of stops reg'd	1	1	0	1	1	0
- Pump out minutes	1.7	1.7	0.0	1.7	1.7	0.0
- Connect/Disc. minutes	<u>7.0</u>	<u>7.0</u>	<u>0.0</u>	<u>7.0</u>	<u>7.0</u>	0.0
- Total Time Delay(mins/car)	9	9	0	9	9	0
Average Cost Per Delay	\$5	\$5	\$0	\$5	\$5	\$0
Subtotal- Oprtng Trip Related	\$26	\$23	\$21	\$23	\$24	\$103
Total # Cars in fleet	103	78	21	12	25	. 82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Days per Trip (min. of 1)	1	1	<u>1</u>	1	1	1
Annual Oprtng Trip Related per Car	\$7,478	\$6,847	\$6,072	\$6,810	\$6,866	\$30,192
Annual Non-Trip Related per Car	\$1,276	\$1,276	\$1,714	\$1,276	\$1,276	\$9,246
Annual Oprtng Trip Related per Car Type	\$770,219	\$534,079	\$127,516	\$81,721	\$171,643	\$2,475,751
Annual Non-Trip Related per Car Type	<u>\$131,428</u>	<u>\$99,528</u>	<u>\$35,994</u>	<u>\$15,312</u>	<u>\$31,900</u>	<u>\$758,172</u>
Total OPRTNG COST per Car	\$8,754	\$8,123	\$7,786	\$8,086	\$8,142	\$39,438
Total CAPITAL COST per Car	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488
Total OPRTNG COST for all cars	\$901,647	\$633,607	\$163,510	\$97,033	<b>\$203,543</b>	\$3,233,923
Total CAPITAL COST for all cars	\$1,560,656	\$1,181,856	\$387,240	\$181,824	\$378,800	\$7,748,016

Route Number:

C4.4 Silver Meteor, New York-Tampa

Amtrak Route: Silver Meteor Route Number: #87-88 Origin/Destination: New York-Tampa

Length in Miles:

1,270 23.28 Length in Hours:

Expected Trips per Day: Manufacturer: Equipment:

Monogram Modified Vacuum

Scenario: Unfavorable

Scenario:	Unfavorable	•	:			
* All data on per car basis (unless noted	otherwise)	•				
•	25000	28000	2400(30)	2080	2300	NA
	Amcoach II	<u>Amlounge II</u>	Sleeper 10-6	Slumbercoach 24-	Viewliner-Sleeper	<u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	. 49 . 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	· 24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)					V.	
Black Water:		•		•	r	
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10 -	10	10	10	·10	10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	37.2	30.9	13.9	25.2	21.4	NA ·
Capacity Req'd/day (gals)	61.8	51.3	23.0	41.9	35.6	NA
Adj. Capacity Req'd w/ Buffer	77.2	64.1	28.8	52.3	44.5	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	. 73 101%	88 122%	196 272%	108 150%	127 176%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	3.1	3.8	8.4	4.6	5.4	NA
As a percentage of 3 days	104.62%	125.97%	280.58%	154.32%	181.55%	NA
Consecutive Trips before pumpout	3.0	3.0	8.0	4.0	5.0	NA
CAPITAL COSTS		•				
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>	\$80,000	<u>\$42,500</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$63,500	\$101,000	\$63,500	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	\$9,216	<u>\$4.896</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	NA
Total Capital Cost	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	NA

Amtrak Route: Origin/Destination:

Length in Miles:

Silver Meteor

New York-Tampa

1,270

23.28

Length in Hours: Expected Trips per Day: Manufacturer:

Equipment:

Monogram Modified Vacuum

Scenario:

Unfavorable

* All data on per car basis (unless noted of	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10 <u>-6</u>	2080 Slumbercoach 24	2300 <u>Viewliner-Sleeper</u>	. 1
OPERATING COSTS	Amcoacri II	Amounge II	Sieeper 10-6	Siumbercoach 24-	Alemilier-Sieebel	1
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	<sup>3</sup> \$2,304	\$1,224	ı
Frequency per Year	4	<u>4</u>	4	4	<u>4</u>	
Servicing Cost/Year	\$576	\$576	\$4,89 <b>6</b>	\$9,216	\$4,89 <del>6</del>	1
Annual spare parts cost per yr	\$1,300	\$1,300	\$3,175	\$5,050	\$3,175	j
Total- Oprtng Non-Trip Related	\$1,876	\$1,876	\$8,071	\$14,266	\$8,071	1
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	1
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$
Pump out and Disposal	,	,,,	**	**		·
- Pump out Cost	\$0.62	\$0.51	\$0.23	\$0.42	\$0.36	١
- Pump out minutes	1.03	0.85	0.38	0.70	0.59	!
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	,
- Waste Disposal	\$1.05	\$0.87	\$0.39	\$0.71	\$0.60	
Subtotal- End of Day/Trip Srvc	\$13.67	\$13.38	\$102.62	\$193.13	\$102.96	1
Train Delay:	\$13.07	\$13.30	\$102.02	\$193.13	\$102.90	•
- Pump out volume reg'd	0	0	. 0	0	0	ı
- # of stops req'd	0	0	0	0	0	' 
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	, N
- Connect/Disc. minutes	0.0 0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	<u>N</u>
- Total Time Delay(mins/car)	<u>5.5</u> 0	<u>9.9</u>	<u>0.0</u> 0	<u>0.0</u> 0	<u>0.0</u> 0	<u>.</u>
**	\$0	\$0	\$0	\$0	\$0	<b>,</b>
Average Cost Per Delay	•	•		•	•	
Subtotal- Oprtng Trip Related	\$14	\$13	\$103	\$193	\$103	, N
Total # Cars in fleet	. 119	. 25	82	16	2	N
Total Annual Car-days	43,435	. 9,125	29,930	5,840	730	N
Adjusted Total Car-days	34,748	7,300	23,944	4,672	584	٨
Days per Trip (min. of 1)	2	<u>2</u>	2	<u>2</u>	2	1
Annual Oprtng Trip Related per Car	\$1,995	\$1,954	\$14,983	\$28,197	\$15,032	٨
Annual Non-Trip Related per Car	\$1,876	\$1,876	\$8,071	\$14,266	\$8,071	,
Annual Oprtng Trip Related per Car Type	\$237,455	\$48,854	\$1,228,587	. \$451,153	\$30,065	1
Annual Non-Trip Related per Car Type	<u>\$223,244</u>	<u>\$46,900</u>	<u>\$661.822</u>	<u>\$228,256</u>	<u>\$16.142</u>	1
Total OPRTNG COST per Car	\$3,871	\$3,830	\$23,054	\$42,463	\$23,103	
Total CAPITAL COST per Car	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	1

Route Number:

#87-88

Amtrak Route: Silver Meteor Route Number: #87-88

Origin/Destination:New York-TampaLength in Miles:1,270Length in Hours:23.28

Expected Trips per Day:

Manufacturer:MonogramEquipment:Self-Cont'd Recirc

Scenario: Unfavorable
\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted o	therwise)					
	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA NA
Quantity of cars	7	1	. 2	1	, 1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	NA
Capacity Req'd/day (gals)	25.7	21.3	9.6	17.4	14.8	NA
Adj. Capacity Req'd w/ Buffer	32.1	26.7	12.0	21.8	18.5	NA
Tank Capacity per Car (gals)	27	27	229.5	432	229.5	NA
Continuous Service Hours Supported As a percentage of 72 hours	20 28%	24 34%	460 639%	. 476 661%	298 413%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.9	1.0	19.8	20.5	12.8	NA
As a percentage of 3 days	28.89%	34.78%	658.47%	681.71%	426.07%	NA
Consecutive Trips before pumpout	0.0	1.0	19.0	20.0	12.0	NA
CAPITAL COSTS	1	,	•	•		
Collection System per Car	<b>\$</b> 0	\$0	\$0	<b>\$</b> 0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>	\$104,000	<u>\$55,250</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$55,250	\$104,000	\$55,250	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4.896</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$4,896	\$9,216	\$4,896	NA
Total Capital Cost	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA

Amtrak Route: Silver Meteor Route Number:

Origin/Destination:New York-TampaLength in Miles:1,270Length in Hours:23.28

Length in Hours: 23
Expected Trips per Day:

Manufacturer: Monogram
Equipment: Self-Cont'd Recirc

Scenario: Unfavorable

Total CAPITAL COST for all cars

\* All data on per car basis (unless noted otherwise) 25000 28000 2400(30) 2080 2300 Amcoach II Amlounge II Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper NA **OPERATING COSTS** Non-Trip Related Costs: \$576 \$576 \$4,896 Labor cost/major servicing \$9,216 \$4,896 NA Frequency per Year 4 \$2,304 Servicing Cost/Year \$2,304 \$19,584 \$36,864 \$19,584 NA \$2,763 Annual spare parts cost per yr \$325 \$325 \$5,200 \$2,763 <u>NA</u> \$22,347 Total- Opring Non-Trip Related \$2,629 \$2,629 \$42,064 \$22,347 NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$102 \$192 \$102 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$4.20 \$0.21 \$0.10 \$0.17 \$0.15 NA - Pump out minutes 0.00 0.36 0.25 NA 0.16 0.29 - Connect/Disc. minutes NA 7.0 0.0 0.0 0.0 0.0 - Waste Disposal \$0.47 \$0.21 \$0.33 \$0.57 \$0.38 NΑ Subtotal- End of Day/Trip Srvc \$16.77 \$12.68 \$102.31 \$192.56 \$102.47 NA Train Delay: - Pump out volume reg'd 27 Ò 0 0 0 NA - # of stops reg'd 1 0 0 0 0 NA - Pump out minutes 0.5 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 <u>NA</u> 7.0 - Total Time Delay(mins/car) 7 0 0 0 0 NA \$0 \$0 \$0 NA Average Cost Per Delay \$4 \$0 Subtotal- Oprtng Trip Related \$102 \$102 \$21 \$13 \$193 NA Total # Cars in fleet 119 25 82 16 2 NA Total Annual Car-days 29,930 730 43,435 9,125 5,840 NA Adjusted Total Car-days 34,748 7,300 23,944 4,672 584 NA Days per Trip (min. of 1) 2 2 2 2 2 Annual Opring Trip Related per Car \$3,100 \$1,852 \$14,937 \$28,113 \$14,961 NA Annual Non-Trip Related per Car \$2,629 \$2,629 \$42,064 \$22,347 NA \$22,347 Annual Opring Trip Related per Car Type \$368,942 \$46,293 \$1,224,815 \$449,814 \$29,922 NA Annual Non-Trip Related per Car Type \$312,851 \$65,725 \$1,832,413 \$673,024 \$44,693 <u>NA</u> Total OPRTNG COST per Car \$37,308 \$5,729 \$4,481 \$37,283 \$70,177 NA Total CAPITAL COST per Car \$7,076 \$7,076 \$60,146 \$113,216 \$60,146 NA Total OPRTNG COST for all cars \$681,793 \$112,018 \$3,057,228 \$1.122.838 \$74.615 NA

#87-88

\$4,931,972

\$1,811,456

\$120,292

NA

\$176,900

\$842,044

Amtrak Route: Silver Meteor Route Number: #87-88

Origin/Destination: New York-Tampa 1,270 Length in Miles: Length in Hours: 23.28

Expected Trips per Day:

Manufacturer: Microphor Gravity Equipment: Scenario: Unfavorable

* All data on per car basis (unless noted o	therwise)		•		÷	
	25000	28000	2400(30)	2080 Slumbercoach 24-	2300	NA NA
	Amcoach II	Amlounge II	Sleeper 10-6			· <del></del>
Quantity of cars	7	1	2	1	1	NA NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	· NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)						
Black Water:				*		
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	. 10	10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	101.5	84.3	37.8	68.8	58.5	NA
Capacity Req'd/day (gals)	124.1	103.1	46.3	84.2	71.5	. NA
Adj. Capacity Req'd w/ Buffer	155.2	128.9	57.9	105.2	89.4	, NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	46 64%	56 78%	124 173%	68 95%	81 112%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	2:0	2.4	5.3	2.9	3.5	NA
As a percentage of 3 days	66.44%	80.00%	178.18%	98.00%	115.29%	NA
Consecutive Trips before pumpout	1.0	2.0	5.0	2.0	3.0	NA
CAPITAL COSTS	•					
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	\$85,000	<u>\$160,000</u>	<u>\$85,000</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$95,000	\$170,000	\$95,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9.216</u>	\$4,896	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$5,472	\$9,792	\$5,472	NA
Total Capital Cost	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA NA

	Now York Tompo		Route Number:	#87-88		
Origin/Destination:	New York-Tampa					
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	1				•	-
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Unfavorable					
* All data on per car basis (unless noted	•					
	25000 <u>Amcoach II</u>	28000 <u>Amiounge II</u>	2400(30) Slooper 10 6	2080 Slumbercoach 24-	2300	NA NA
OPERATING COSTS	Amcoacitii	Amounge II	Sleeper 10-6	Siumbercoach 24	viewiiner-Sieeper	INC
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	N/
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	4	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$4,896	\$9,216	\$4,896	NA NA
Annual spare parts cost per yr	<u>\$1,000</u>	\$1,0 <u>00</u>	\$4,750	\$8,500	\$4,750	<u>NA</u>
Total- Opring Non-Trip Related	\$1,576	\$1,576	\$9,646	\$17,716	\$9,646	NA NA
,				<del></del>		
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	. \$0	\$0	\$0
Pump out and Disposal						•
- Pump out Cost	\$1.24	\$1.03	\$0.46	\$0.84	\$0.72	N/
- Pump out minutes	2.07	1.72	0.77	1.40	1.19	NA.
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	NA.
- Waste Disposal	\$2.11	\$1.7 <u>5</u>	<u>\$0.79</u>	<b>\$1.43</b>	\$1.22	<u>N</u> A
Subtotal- End of Day/Trip Srvc	\$15.35	\$14.78	\$103.25	\$194.27	\$103.93	NA
Train Delay:						
- Pump out volume reg'd	0	· 0	0	0	0	NA NA
- # of stops req'd	0	0	0	0	0	NA.
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	N/
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	. <u>N</u> A
- Total Time Delay(mins/car)	0			_	0	NA NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	NA
Subtotal- Opring Trip Related	\$15	\$15	\$103	\$194	\$104	ŃΑ
Total # Cars in fleet	119	25	82	16	2	NA
		_				
Total Annual Car-days	43,435	9,125	29,930	5,840	730	N/A
•		•	·	•		
Adjusted Total Car-days	34,748	7,300	23,944	4,672	584	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
		_	· <del>-</del>	_	_	_
Annual Oprtng Trip Related per Car	\$2,241	\$2,158	\$15,074	\$28,364	\$15,174	NA
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$9,646	\$17,716	\$9,646	NA
•					• • •	
Annual Opring Trip Related per Car Type	\$266,718	\$53,960	\$1,236,106	\$453,820	\$30,348	NA.
Annual Non-Trip Related per Car Type	<u>\$187,544</u>	\$39,400	\$790,972	\$283,456	\$19,292	<u>NA</u>
				•		
Total OPRTNG COST per Car	\$3,817	\$3,734	\$24,720	\$46,080	\$24,820	N/
	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	N/

Amtrak Route:	Silver Meteor	Route Number:	#87-88
Origin/Destination:	New York-Tampa		

1,270

\$1,440

\$576

\$2,016

\$19,816

Length in Miles: Length in Hours: 23.28 Expected Trips per Day: 1

Manufacturer: Evac Equipment: Ultimate

Equipment Installation Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 25000 28000 2400(30) 2080 2300 NA Amcoach II Amlounge II Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper <u>NA</u> 7 NA 2 Quantity of cars 22 17 34 17 NA Capacity (# people) - seated 59 49 40 NA 2 32 Toilets per car 2 Average persons/toilet on train 1.3 29.5 24.5 1.3 2.0 NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 26.49 22.00 9.88 17.96 15.27 NA # Flushes/Person-day 8.00 8.00 00,8 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 10 Adj. # Flushes/Person-day 10 10 10 10 10 0.047 0.047 0.047 0.047 0.047 Flush Fluids/flush (gals) 0.047 Flush Fluids/day (gals) 23.0 18.8 16.0 27.7 10.3 NA 30.3 52.6 43.7 19.6 35.7 NA Capacity Req'd/day (gals) NA Adj. Capacity Req'd w/ Buffer 65.7 54.6 24.5 44.6 37.9 Tank Capacity per Car (gals) 200 200 200 200 20Ó 200 Continuous Service Hours Supported 73 88 196 108 127 NA As a percentage of 72 hours 101% 122% 272% 150% 176% NΑ Probable Service Hours per Day 23.28 23.28 23.28 23.28 23.28 23.28 Service Days Supported 3.1 3.8 8.4 4.6 5.4 NA As a percentage of 3 days 104.54% 125.88% 280.36% 154.20% 181.41% NA Consecutive Trips before pumpout 3.0 5.0 3.0 8.0 4.0 NA CAPITAL COSTS Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Toilet Cost per Car \$5,800 \$5,800 \$49,300 \$49,300 \$92,800 <u>NA</u> - Total Equip Cost \$17,800 \$17,800 \$61,300 \$104,800 \$61,300 NA

\$1,440

\$2,016

\$19,816

\$576

\$1,440

\$4,896

\$6,336

\$67,636

\$1,440

\$9,216

\$10,656

\$115,456

\$1,440

\$4,896

\$6,336

\$67,636

\$1,440

<u>NA</u>

NA

NA

Amtrak Route:	Silver Meteor		Route Number:	#87-88	٠	
Origin/Destination:	New York-Tampa					
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	1		•	•		
Manufacturer:	Evac					
Equipment:	Ultimate	•				
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	therwise)					
	25000	28000	2400(30)	2080	2300	NA
	Amcoach II	Amlounge II	Sleeper 10-6	Slumbercoach 24-	<u>Viewliner-Sleeper</u>	<u>ŅA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	4	4	4		4	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$4,896	_	\$4,896	NA NA
Annual spare parts cost per yr	\$890	\$890	\$3,065	· ·	\$3,065	NA
Total- Opring Non-Trip Related	\$1,466	\$1,466	\$7,961		\$7,961	NA NA
	V.11.55			***************************************		
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.53	\$0.44	`\$0.20	\$0.36	\$0,30	NA
- Pump out minutes	0.88	0.73	0.33	0.59	0.51	NA
- Connect/Disc. minutes	. 0.0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$0.89</u>	<u>\$0.74</u>	<u>\$0.33</u>	<u>\$0.61</u>	<u>\$0.52</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.42	\$13.18	\$102.53	\$192.96	\$102.82	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	0	NA
- # of stops req'd	0	0	0	0	0	. NA
- Pump out minutes	0.0	0.0	0.0	.0.0	0.0	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	0.0	<u>0.0</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0		0	NA
Average Cost Per Delay	\$0	\$0	\$0	•	\$0	, NA
Subtotal- Opring Trip Related	\$13	\$13	\$103	\$193	\$103	NA NA
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	34,748	7,300	23,944	4,672	584	NA
Days per Trip (min. of 1)	2	2	2		<u>2</u>	<u>2</u>
Annual Opring Trip Related per Car	\$1,959	\$1,924	\$14,969	\$28,173	\$15,011	NA
Annual Non-Trip Related per Car	\$1,466	\$1,466	\$7,961		\$7,961	. NA
Annual Opring Trip Related per Car Type	\$233,160	\$48,105	\$1,227,483	\$450,761	\$30,023	NA
Annual Non-Trip Related per Car Type	<u>\$174.454</u>	\$36,650	\$652,802		\$15,922	NA NA
Total OPRTNG COST per Car	\$3,425	\$3,390	\$22,930	\$42,629	\$22,972	· NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$407,614 \$2,358,104			1,000	\$45,945 \$135,272	NA NA

Silver Meteor

Route Number:

#87-88

Origin/Destination:

New York-Tampa

Length in Miles:

1,270

Length in Hours: Expected Trips per Day: 23.28

Manufacturer: Equipment:

Railtech WTS 8300

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

, in daile on por dell bedro (dimeso nerod on	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1.	1	NA
Capacity (# people) - seated	59	49	22	40	34	NA
Toilets per car	2	2	17	32	17	NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)				·		
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	155.3	128.9	57.9	105.3	89.5	NA
Capacity Req'd/day (gals)	176.3	146.4	65.7	119.5	101.6	NA
Adj. Capacity Req'd w/ Buffer	220.4	183.0	82.2	149.4	127.0	, NA
Tank Capacity per Car (gals)	100	100	450	800	450	, NA
Continuous Service Hours Supported As a percentage of 72 hours	11 15%	13 18%	131 183%	129 178%	85 118%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.5	0.6	5.6	5.5	3.7	NA
As a percentage of 3 days	15.59%	18.78%	188.18%	184.00%	121.77%	NA
Consecutive Trips before pumpout	0.0	0.0	5.0	5.0	3.0	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$36,000	\$64,000	\$36,000	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$51,000</u>	\$96,000	<u>\$51,000</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$87,000	\$160,000	\$87,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$2,592	\$4,608 .	\$2,592	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$7,488	\$13,824	\$7,488	NA
Total Capital Cost	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	NA NA

Silver Meteor

Route Number:

#87-88

Length in Miles:

Origin/Destination:

New York-Tampa

1,270 23.28

Length in Hours: Expected Trips per Day:

.1

Manufacturer:

Railtech

Equipment: Scenario:

WTS 8300 Unfavorable

* All data on per car basis (unless noted ot	herwise)					
, ,	25000 Amcoach II	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	4	4	<u>4</u>	4	<u>4</u>	· <u>4</u>
Servicing Cost/Year	\$57 <b>6</b>	\$576	\$4,896	\$9,216	\$4,89 <b>6</b>	NA
Annual spare parts cost per yr	\$700	\$700	\$4,350	\$8,000	<u>\$4,350</u>	NA.
Total- Oprtng Non-Trip Related	\$1,276	\$1,276	\$9,246	\$17,216	\$9,246	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						-
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	<b>\$</b> 0
Pump out and Disposal						
- Pump out Cost	\$4.96	\$4.66	\$0.66	\$1.20	\$1.02	· NA
- Pump out minutes	1.27	0.77	1.10	1.99	1.69	. NA
- Connect/Disc. minutes	7.0	7.0	0.0	0.0	0.0	NA
- Waste Disposal	\$3.00	\$2.49	\$1,12	\$2.03	\$1.73	· NA
Subtotal- End of Day/Trip Srvc	\$19.96	\$19.15	\$103,77	\$195.23	\$104.74	NA
Train Delay:						
- Pump out volume reg'd	100	100	0	0	0	NA
- # of stops req'd	1	1	. 0	0	0	NA
- Pump out minutes	1.7	1.7	0.0	0.0	0.0	NA
- Connect/Disc. minutes	7.0	7.0	0.0	0.0	0.0	<u>NA</u>
- Total Time Delay(mins/car)	9	9	0			NA NA
Average Cost Per Delay	\$5	\$5	\$0	\$0	\$0	NA
Subtotal- Oprtng Trip Related	\$25	\$24	\$104	\$195	\$105	NA NA
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NĄ
Adjusted Total Car-days	34,748	7,300	23,944	4,672	584	NA
Days per Trip (min. of 1)	2	2	<u>2</u>	2	<u>2</u>	2
Annual Oprtng Trip Related per Car	\$3,673	\$3,556	\$15,151	\$28,503	\$15,292	NA
Annual Non-Trip Related per Car	\$1,276	\$1,276	\$9,246	\$17,216	\$9,246	NA
Annual Oprtng Trip Related per Car Type	\$437,132	\$88,890	\$1,242,394	\$456,051	\$30,585	NA
Annual Non-Trip Related per Car Type	<u>\$151.844</u>	<u>\$31,900</u>	<u>\$758.172</u>	<u>\$275.456</u>	<u>\$18,492</u>	<u>NA</u>
Total OPRTNG COST per Car	\$4,949	\$4,832	\$24,397	\$45,719	\$24,538	<sup>'</sup> NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	NA
Total OPRTNG COST for all cars	\$588,976	\$120,790	\$2,000,566	\$731,507	\$49,077	NA NA
Total CAPITAL COST for all cars	\$1,803,088	\$378,800	\$7,748,016	\$2,781,184	\$188,976	NA

C4.5 Benjamin Franklin, Boston-Philadelphia

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day: Manufacturer: Equipment:	Benjamin Franklin Boston-Philadelphia 322 6.55 2 Monogram Modified Vacuum		Route Number:	#193		
Scenario:	Unfavorable	-				
* All data on per car basis (unless noted				•		
All data off per car basis fulliess flored	20000 Amcafe	21000 Amcoach	20100 Amclub	NA NA		NA NA
Quantity of cars	1	1	3			NA.
Capacity (# people) - seated Toilets per car	53 2	84 2	41	NA	NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	· NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	33.4	52.9	25.8	NA	, NA	NA
Capacity Req'd/day (gals)	31.2	49.5	24.1	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	39.0	61.8	30.2		NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	145 201%	91 127%	187 260%	6 NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	11.0	7.0	14.3	NA	NA	NA
As a percentage of 3 days	367.81%	232.07%	475.46%	6 NA	, NA	NA
Consecutive Trips before pumpout	22.0	13.0	28.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation						

\$1,440

\$2,016

\$28,016

<u>\$576</u>

\$1,440

<u>\$576</u>

\$2,016

\$28,016

\$1,440

<u>NA</u>

NA

NA

\$1,440

<u>NA</u>

NA

NA

\$1,440

<u>NA</u>

NA

NA

\$1,440

\$2,016

\$28,016

<u>\$576</u>

Equipment Installation Collection System per Car

Toilet Cost per Car

Total Capital Cost

- Total Installation Cost

Origin/Destination:	Benjamin Franklin Boston-Philadelphia		Route Number:	#193	·	
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2			•		
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Unfavorable				,	
* All data on per car basis (unless noted of	therwise)					
	20000	21000	20100	NA	NA NA	NA
OPERATING COSTS	<u>Amcafe</u>	Amcoach	<u>Amclub</u>	. <u>NA</u>	<u>NA</u>	. <u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	ŅA	NA
Frequency per Year	<u>4</u>	<u>4</u>	4	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA
Annual spare parts cost per yr	<u>\$1,300</u>	\$1,300	\$1,300	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,876	\$1,876	\$1,876	NĄ NĄ	NA	NA NA
Trin Bolated Contac			,			•
Trip Related Costs: Toilet maintenance enroute						
End of Day/Trip Servicing			•			
- Cleaning	\$12	\$12	\$12		NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Pump out and Disposal	00.04		20.04	ALA		<b>514</b>
- Pump out Cost	\$0.31	\$0.49	\$0.24	. NA	NA	NA
- Pump out minutes	0.52	0.82	0.40	NA NA	NA NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$1.06</u>	\$1.68	<u>\$0.82</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.37	\$14.18	\$13.06	NA	NA	NA
Train Delay:	0	0	0	'NIA	. NA	NIA.
<ul> <li>Pump out volume req'd</li> <li># of stops req'd</li> </ul>	0	0	0	NA NA	NA NA	NA NA
- Pump out minutes	0.0	0.0	0.0		NA NA	NA NA
- Connect/Disc. minutes	0.0 0.0	0.0	0.0 0.0	NA NA	NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	<u>0.0</u> 0	<u>0.0</u>	NA NA	NA NA	NA NA
Average Cost Per Delay	\$0	\$0	\$0	NA.	NA NA	. NA
Subtotal- Opring Trip Related	\$13	\$14	\$13		NA NA	NA NA
Capitala Opining Trip Heilaled			<b>410</b>	107		
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	13,140	77,672	7,008	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,905	\$4,140	\$3,814	· <b>NA</b>	NA	NA
Annual Non-Trip Related per Car	\$3,903 \$1,876	\$4,140 \$1,876	\$1,876		NA NA	NA NA
Annual Ondre Trip Polated nor Car Time	\$47E 707	£1 101 100	PO4 F40	NA	NA	NI A
Annual Oprtng Trip Related per Car Type Annual Non-Trip Related per Car Type	\$175,727 <u>\$84,420</u>	\$1,101,138 <u>\$499,016</u>	\$91,542 <u>\$45,024</u>			NA NA
Aunda Non-Trip herated per Car Type	<u> </u>	<u> •+aa'∩10</u>	<u> 45,024</u>	<u>INA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	ه \$5,781	\$6,016	\$5,690		NA	NA
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	· NA	NA

Dright/Deserration:   Boston-Philadelphia   Larght in Hours:   6.55   Expected Tipe per Day:   2   Expected Tipe per Day:   2   Expected Tipe per Day:   2   Expected Tipe per Day:   3   Expected Tipe per Day:   2   Expected Tipe per Day:   3   Ex	Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Length in Houre:   6.55   Exposed of Tips por Dary:   2   Manufacturer:   Monogram   Self-Contid Rocinc   Self-Contid Rocinc R	Origin/Destination:	Boston-Philadelphia					
Expected Trips por Day:   2	Length in Miles:	322		• •			
Manufacturin	Length in Hours:	6.55					
Equipment:   Selt-Control Reciro   Control Recirco   Control Reciro   Control Recirco	Expected Trips per Day:	2					
*All data on per car basis (unless noted otherwise)  *All data on per car basis (unless noted otherwise)  *All data on per car basis (unless noted otherwise)  *All data on per car basis (unless noted otherwise)  *Amount of cars  1 1 1 3 NA NA NA  *Capacity (# people) - seated 53 84 41 NA NA NA  *All All All All All All All All All All	Manufacturer:	Monogram					•
*All data on per car basis (unless noted otherwise)  **Probable Service Hours Supported **Probable Service Hours Supported **All data on per car basis (unless noted otherwise)  **Probable Service Hours Supported **All data on per car basis (unless noted otherwise)  **Probable Service Hours Supported **All data on per car basis (unless noted otherwise)  **Probable Service Hours Supported **All data on per car basis (unless noted otherwise)  **Probable Service Hours Supported **All data on per car basis (unless noted otherwise)  **Probable Car	Equipment:	Self-Cont'd Recirc					
	Scenario:	Unfavorable					
	* All data on per car basis (unless noted	otherwise)					
Quantity of cars         1         1         3         NA         NA         NA           Capacity (#) people) - seated         53         84         41         NA         NA         NA           A Croscoticy (#) people) - seated         2         2         2         NA         NA         NA           A Crey (Master) - Carry         Seate (Master)         Seate (Master) <td< td=""><td>· · · · · · · · · · · · · · · · · · ·</td><td></td><td>21000</td><td>20100</td><td>NA</td><td>, NA</td><td>NA</td></td<>	· · · · · · · · · · · · · · · · · · ·		21000	20100	NA	, NA	NA
Capacity (# people) - seated   53   84   41   NA   NA   NA   NA   NA   NA   NA   N		<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	NA	<u>NA</u>
Capacity (# people) - seeled   53   84   41   NA   NA   NA   NA   NA   NA   NA   N	Quantity of cars	1	1	3	NA	NA	NA
Toilet sper carr 2 2 2 2 NA NA NA NA Average persons/tollet on train 26.5 42.0 20.5 NA NA NA NA NA Average persons/tollet on train 26.5 42.0 20.5 NA NA NA NA NA NA NA NA SPEUS PERSON-DAY SUPPORTED AVERSON 200.0 8.00 8.00 8.00 8.00 8.00 8.00 8.0	·				NA		NA
Black Water:   Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   Flushes/Person-day   8.00   8.00   8.00   8.00   8.00   8.00   8.00   8.00   8.00   8.00   Flush efficiency adjustment   1.25   1.2		2	2	2	NA	NA	, NA
Bilack Water:	Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Bilack Water:							
Bilack Water:	•				•		
Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   #Flushes/Person-day   8.00	Car Waste Data (per car)						
Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   #Flushes/Person-day   8.00		•					
# Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0							
Flush efficiency adjustment	Human Waste/day (gals)		37.72				
Adj. # Flushes/Person-day         10         0.00	# Flushes/Person-day	8.00	8.00	8.00	8,00	8.00	8.00
Fluish Fluids/fluish (gals)         0.000         NA         NA         NA         NA           Capacity Req'd w/ Buffer         16.2         25.7         12.6         NA         NA         NA         NA           Tank Capacity per Car (gals)         27         27         27         NA         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         40         25         52         NA         NA         NA           As a percentage of 72 hours         13.1	Flush efficiency adjustment						•
Flush Fluids/day (gals)   0.0   0.	Adj. # Flushes/Person-day	10	10	10	10	10	10
Capacity Req'd/day (gals) 13.0 20.6 10.0 NA NA NA NA Adj. Capacity Req'd w Bulfer 16.2 25.7 12.6 NA NA NA NA NA Tank Capacity per Car (gals) 27 27 27 NA NA NA NA NA NA NA NA As a percentage of 72 hours 55% 35% 35% 72% NA NA NA NA NA NA NA NA As a percentage of 72 hours 9r Day 13.1 13.1 13.1 13.1 13.1 13.1 13.1 13.	Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Adj. Capacity Req'd w/ Buffer         16.2         25.7         12.6         NA         NA         NA           Tank Capacity per Car (gals)         27         27         27         NA         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         40         25         52         NA         NA         NA           As a percentage of 72 hours         55%         35%         72%         NA         NA         NA           Probable Service Hours per Day         13.1	Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Adj. Capacity Req'd w/ Buffer         16.2         25.7         12.6         NA         NA         NA           Tank Capacity per Car (gals)         27         27         27         NA         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         40         25         52         NA         NA         NA           As a percentage of 72 hours         55%         35%         72%         NA         NA         NA           Probable Service Hours per Day         13.1							
Tank Capacity per Car (gals)         27         27         27         NA         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         40         25         52         NA         NA         NA         NA           Probable Service Hours per Day         13.1	Capacity Req'd/day (gals)	13.0	20.6	10.0	NA	· NA	NA
Continuous Service Hours Supported As a percentage of 72 hours         40 55%         25 52 72%         NA N	Adj. Capacity Req'd w/ Buffer	16.2	25.7	12.6	NA	NA	NA
As a percentage of 72 hours 55% 35% 72% NA NA NA NA  Probable Service Hours per Day 13.1 13.1 13.1 13.1 13.1 13.1 13.1 13.	Tank Capacity per Car (gals)	27	27	27	NA	NA	: NA
As a percentage of 72 hours 55% 35% 72% NA NA NA NA  Probable Service Hours per Day 13.1 13.1 13.1 13.1 13.1 13.1 13.1 13.							
Probable Service Hours per Day         13.1         14.2         14.2         14.2			25 35%				
Service Days Supported         3.0         1.9         3.9         NA         NA         NA           As a percentage of 3 days         101.55%         64.07%         131.28%         NA         NA         NA           Consecutive Trips before pumpout         6.0         3.0         7.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$0	rio a porocinago or 72 nocio	0070	0070	1270			101
Service Days Supported         3.0         1.9         3.9         NA         NA         NA           As a percentage of 3 days         101.55%         64.07%         131.28%         NA         NA         NA           Consecutive Trips before pumpout         6.0         3.0         7.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$0	Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
As a percentage of 3 days 101.55% 64.07% 131.28% NA NA NA NA NA NA Consecutive Trips before pumpout 6.0 3.0 7.0 NA NA NA NA NA NA CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	r robable dervice riours per bay	10.1	13.1	13.1	13.1	10.1	10.1
As a percentage of 3 days 101.55% 64.07% 131.28% NA NA NA NA NA NA Consecutive Trips before pumpout 6.0 3.0 7.0 NA NA NA NA NA NA CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Service Days Supported	3.0-	10	3 9	NΔ	NA	NΔ
Consecutive Trips before pumpout         6.0         3.0         7.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$0 <td>• ••</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	• ••						
CAPITAL COSTS           Collection System per Car         \$0 <t< td=""><td>. to a portormago or o dayo</td><td>101.0070</td><td>04.07.70</td><td>101.2070</td><td></td><td></td><td></td></t<>	. to a portormago or o dayo	101.0070	04.07.70	101.2070			
CAPITAL COSTS           Collection System per Car         \$0 <t< td=""><td>Consecutive Trips before pumpout</td><td>6.0</td><td>3.0</td><td>7.0</td><td>NA</td><td>NA</td><td>NA</td></t<>	Consecutive Trips before pumpout	6.0	3.0	7.0	NA	NA	NA
Collection System per Car         \$0	Considering Impa Balara pampaa	0.0	0.0	7.0			1.37 1
Collection System per Car         \$0	CAPITAL COSTS						
Toilet Cost per Car         \$6,500         \$6,500         \$6,500         NA         NA         NA         NA           - Total Equip Cost         \$6,500         \$6,500         \$6,500         NA         NA         NA         NA           Equipment Installation         SO         SO         \$0		\$0	\$0	\$0	\$0	\$0	\$0
- Total Equip Cost         \$6,500         \$6,500         \$6,500         NA	• •		•				•
Equipment Installation           Collection System per Car         \$0	•						
Collection System per Car         \$0         \$0         \$0         \$0         \$0         \$0           Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA         NA           - Total Installation Cost         \$576         \$576         \$576         NA         NA         NA         NA	<u> </u>	40,000	\$5,555	<b>\$0,000</b>			
Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA           - Total Installation Cost         \$576         \$576         \$576         NA         NA         NA	• •	\$0	.20	.\$0	<b>\$</b> 0	· <b>\$</b> 0	\$0
- Total Installation Cost \$576 \$576 NA NA NA	- •					• -	· ·
	•						
יטים בעיים ביים פורים פו							
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Amtrak Route:	Benjamin Franklin		Route Number:	#193		•
Origin/Destination:	Boston-Philadelphia		•			
Length in Miles:	322	•				
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Monogram					,
Equipment:	Self-Cont'd Recirc					
Scenario;	Unfavorable					
<ul> <li>All data on per car basis (unless noted o</li> </ul>						A .
	20000 <u>Amcafe</u>	21000 Amcoach	20100 <u>Amclub</u>	NA <u>NA</u>		NA <u>NA</u>
OPERATING COSTS		•				
Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576			NA
Frequency per Year	<u>4</u>	4	4		<u>4</u>	<u>4</u>
Servicing Cost/Year	\$2,304	\$2,304	\$2,304		NA	NA
Annual spare parts cost per yr	<u>\$325</u>	<u>\$325</u>	<u>\$325</u>			<u>NA</u>
Total- Oprtng Non-Trip Related	\$2,629	\$2,629	\$2,629	NA NA	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing	040	A				212
- Cleaning	\$12	\$12	\$12			NA 20
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	40.40					
- Pump out Cost	\$0.13	\$0.21	\$0.10			NA
- Pump out minutes	0.22	0.34	0.17			NA
- Connect/Disc. minutes	0.0	0.0	0.0			NA NA
- Waste Disposal	<u>\$0.57</u>	<u>\$0.91</u>	<u>\$0.44</u>			<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$12.70	\$13.11	\$12.54	NA NA	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0			NA
- # of stops req'd	0	0	0			NA
- Pump out minutes	0.0	0.0	0.0	NA		NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>			<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA		NA
Subtotal-Opring Trip Related	\$13	\$13	\$13	NA NA	NA NA	NA NA
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	10.400	07.000	0.700	NA	NA	NA
Total Affidal Car-days	16,425	97,090	8,760	INA	NA	INA
Adjusted Total Car-days	13,140	77,672	7,008	· NA	NA	NA
Days per Trip (min. of 1)	1.	1	1		1	1
Annual Opring Trip Related per Car	\$3,709	\$3,829	\$3,662	. NA	NA	NA
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$2,629			NA NA
, , , , , , , , , , , , , , , , , , ,	·	<b>V-,</b>	•-•			
Annual Oprtng Trip Related per Car Type	\$166,897	\$1,018,410	\$87,899	NA NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$118,305</u>	\$699,314	\$63,096	. NA	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$6,338	\$6,458	\$6,291	NA	NA	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076			NA NA
	¥-,	** 1=**	Ţ., <b>2.</b>			
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$285,202 \$318,420	\$1,717,724 \$1,882,216	1. 1. Applied to 1978 March 1978 Applied to	\$11 AV 1 KU 19999 KUN		NA NA

Amtrak Route: Origin/Destination:	Benjamin Franklin Boston-Philadelphia		Route Number: #19	3		
Length in Miles:	322					
Length in Hours:	6.55		•			
Expected Trips per Day:	2					
Manufacturer:	Microphor					
Equipment:	Gravity			,		
Scenario:	Unfavorable					
* All data on per car basis (unless noted						
All data on per car basis (diness noted t	20000	21000	20100	NA	NA	NA
	<u>Amcafe</u>	Amcoach	Amclub	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated	53	84	· 41	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)			·			
Black Water:				•		
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	. 91.2	144.5	70.5	NA	NA	NA
Capacity Req'd/day (gals)	62.7	99.4	48.5	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	78.4	124.3	60.7	NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	92 127%	58 80%	119 <sup>1</sup> 165%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	7.0	4.4	9.1	NA	NA	NA
As a percentage of 3 days	233.58%	147.38%	301.94%	NA	NA	NA
Consecutive Trips before pumpout	14.0	8.0	18.0	· NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$10,000	\$10,000	\$10,000	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA	NA *	NA NA

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day:	Benjamin Franklin Boston-Philadelphia 322 6.55 2	,	Route Number:	#193		
Manufacturer: Equipment:	Microphor Gravity		,			
Scenario:	Unfavorable					
* All data on per car basis (unless noted o						
All data on per our busis (unioso notes o	20000 Amcafe	21000 Amcoach	20100 Amclub	. NA <u>NA</u>	NA NA	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:			<del></del> ,			
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	· <u>4</u>	4	<u>4</u>	<u>4</u>	4	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$576	NA	· NA	NA
Annual spare parts cost per yr	<u>\$1,000</u>	<u>\$1,000</u>	<u>\$1,000</u>	<u>NA</u>	<u>NA</u>	. <u>NA</u>
Total- Oprtng Non-Trip Related	\$1,576	\$1,576	\$1,576	NA NA	NA NA	NA NA
<b>-</b>		•				
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	**	<b>V</b> -		**	•	**
- Pump out Cost	\$0.63	\$0.99	\$0.49	NA	NA	NA
- Pump out minutes	1.05	1.66	0.81	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<b>\$2.13</b>	\$3.3 <u>8</u>	\$1.65	NA	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$14.76	\$16.38	\$14.14	NA	NA NA	NA NA
Train Delay:						•
- Pump out volume req'd	0	0	0	NA	, NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	0.0	<u>NA</u>	<u>NA</u>	. <u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$15	\$16	\$14	NA	NA NA	NA NA
Total # Cars in fleet	45	266	. 24	NA NA	NA	. NA
		~	*			
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	13,140	77,672	7,008	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$4,310	\$4,782	\$4,128	NA	NA	NA
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$1,576	NA	NA	NA
Annual Opring Trip Related per Car Type	\$193,958	\$1,271,937	\$99,064	NA NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$70,920</u>	<u>\$419,216</u>			<u>NA</u>	<u>NA</u>
Total OPPTNG COST por Car	<b>\$5</b> 000	<b>\$6.250</b>	<b>65 704</b>	N/A	<b>KIA</b>	NIA
Total OPRTNG COST per Car Total CAPITAL COST per Car	\$5,886 \$21,152	\$6,358 \$21,152	\$5,704 \$21,152	NA NA	NA NA	NA NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$264,878 \$951,840	\$1,691,153 \$5,626,432	\$136,888		. NA NA	NA NA

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2				•	
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Unfavorable					
* All data on per car basis (unless noted	otherwise)					
	20000	21000	20100	NA	NA	NA
	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	. 1	1	3	NA	NA	, NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
						-
Car Waste Data (per car)				•		
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10.
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	24.9	39.5	19.3	NA	NA	NA
Capacity Req'd/day (gals)	26.6	42.1	20.6	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	33.2	52.7	25.7	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	- 200
	444	ي ۾	407	<b>114</b>	A14	814
Continuous Service Hours Supported As a percentage of 72 hours	144 201%	91 127%	187 259%	NA NA	NA NA	NA NA
no a porconago or 12 mars	201.00					
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
, , , , , , , , , , , , , , , , , , ,						,
Service Days Supported	11.0	7.0	14.3	NA	NA	NA
As a percentage of 3 days	367.53%	231.89%	475.09%	. NA	NA	NA
Consecutive Trips before pumpout	22.0	. 13.0	28.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	· NA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA_	NA	NA NA

Amtrak Route: Benjamin Franklin Route Number:

Origin/Destination:Boston-PhiladelphiaLength in Miles:322Length in Hours:6.55

Expected Trips per Day: 2
Manufacturer: Evac

Equipment: Ultimate
Scenario: Unfavorable

000 201 coach Amcl \$144 4 \$576 \$890 \$1,466		NA NA NA 4 NA NA NA	NA NA NA 4 NA NA NA	NA NA NA 4 NA NA
\$144 4 \$576 \$890	\$144 <u>4</u> \$576 <u>\$890</u>	<u>NA</u> NA 4 NA NA	NA NA 4 NA NA	AM AM AM MA
\$144 4 \$576 \$890	\$144 <u>4</u> \$576 <u>\$890</u>	<u>NA</u> NA 4 NA NA	NA NA 4 NA NA	AM AM AM MA
<u>4</u> \$576 <u>\$890</u>	<u>4</u> \$576 <u>\$890</u>	<u>4</u> NA <u>NA</u>	NA <u>4</u> NA <u>NA</u>	<u>4</u> NA <u>NA</u>
<u>4</u> \$576 <u>\$890</u>	<u>4</u> \$576 <u>\$890</u>	<u>4</u> NA <u>NA</u>	<u>4</u> NA <u>NA</u>	<u>4</u> NA <u>NA</u>
\$576 <u>\$890</u>	\$576 <u>\$890</u>	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
<u>\$890</u>	<u>\$890</u>	. <u>NA</u>	<u>NA</u>	NA <u>N</u> A
		<del></del>	<del></del> -	
\$1,466	\$1,466	NA	NA	NA
\$12	\$12	NA	NA	NA
\$0	\$0	\$0	<b>\$0</b>	\$0
			•	
\$0.42	\$0.21	NA	NA	NA
0.70	0.34	NA	NA	NA
0.0	0.0	NA	NA	NA
<u>\$1.43</u>	<u>\$0.70</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
\$13.85	\$12.90	NA	NA	NA
0	0 -	NA	NA	NA
0	0	NA	NA	NA
0.0	0.0	NA	NA	NA
<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>N</u> A
0	0	NA	NA T	NA
<b>\$</b> 0	<b>\$</b> O	NA	NA	NA
\$14	\$13	NA NA	NA	NA
266	24	NA	NA	NA
97,090	8,760	. NA	NA.	NA
77,672	7,008	NA	NA	NA
1	. <u>1</u>	<u>1</u>	1	1
\$4,045	. \$3,768	NA	NA	NA
\$1,466	\$1,466	NA	NA	NA
\$1,076,067	\$90,438	NA	NA	NA
\$389,956	<u>\$35,184</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<del>-</del>	\$5,234	NA	NA	NA
\$5,511	\$19,816	NA	NA	NA
_	# AL	ŇA	NA	NA
	\$389,956 \$5,511 \$19,816	\$389,956 \$35,184 \$5,511 \$5,234 \$19,816 \$19,816	\$389,956 \$35,184 NA \$5,511 \$5,234 NA \$19,816 \$19,816 NA 1,466,023 \$125,622 NA	\$389,956 \$35,184 NA NA \$5,511 \$5,234 NA NA \$19,816 \$19,816 NA NA

#193

Ameale	Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day: Manufacturer: Equipment: Scenario: * All data on per car basis (unless noted of	Benjamin Franklin Boston-Philadelphia 322 6.55 2 Railtech WTS 8300 Unfavorable		Route Number:	#193		
Capacity (# people) - seated   53   84   41   NA   NA   NA   NA   Toilet oper car   2   2   2   2   NA   NA   NA   NA   N		20000					
Capacity (# people) - seated         53 bit of the people of the peo	Quantity of cars	1	1	3	NA	NA	NA
Car Waste Data (per car)							
Black Water:	•						
Black Water:   Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   Flushes/Person-day   8.00	Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Human Waste/day (gals)   23.80   37.72   18.41   NA   NA   NA   # Flushes/Person-day   8.00   9.00	Car Waste Data (per car)						
#Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Black Water:						
Flush efficiency adjustment         1.25 <t< td=""><td>Human Waste/day (gals)</td><td>23.80</td><td>37.72</td><td>18.41</td><td>NA</td><td>NA</td><td>NÁ</td></t<>	Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NÁ
Adj. # Flushes/Person-day         10         263         0.264         0.264         <	# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	. 8.00
Flush Fluids/flush (gals)  139.5  221.1  107.9  NA  NA  NA  NA  Capacity Req'd/day (gals)  89.1  141.2  68.9  NA  NA  NA  NA  Adj. Capacity Req'd/day (gals)  89.1  111.4  176.6  86.2  NA  NA  NA  NA  NA  Adj. Capacity Per Car (gals)  100  100  100  NA  NA  NA  NA  NA  Continuous Service Hours Supported As a percentage of 72 hours  30%  19%  39%  NA  NA  NA  NA  NA  Probable Service Hours per Day  13.1  13.1  13.1  Service Days Supported  1.6  1.0  2.1  NA  NA  NA  NA  NA  NA  NA  NA  NA  N	Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Flush Fluids/day (gals)  139.5  221.1  107.9  NA  NA  NA  NA  Capacity Req'd/day (gals)  89.1  141.2  68.9  NA  NA  NA  NA  Adj. Capacity Req'd w Buffer  111.4  176.6  86.2  NA  NA  NA  NA  NA  NA  Capacity Per Car (gals)  100  100  100  NA  NA  NA  NA  Continuous Service Hours Supported  As a percentage of 72 hours  30%  19%  39%  NA  NA  NA  NA  NA  NA  Probable Service Hours per Day  13.1  13.1  13.1  13.1  13.1  Service Days Supported  1.6  1.0  2.1  NA  NA  NA  NA  NA  NA  NA  As a percentage of 3 days  54.82%  34.59%  70.87%  NA  NA  NA  NA  CAPITAL COSTS  Collection System per Car  \$8,000  \$8,000  \$8,000  NA  NA  NA  NA  NA  NA  Toilet Cost per Car  \$6,000  \$6,000  \$14,000  NA  NA  NA  NA  NA  NA  NA  NA  NA	Adj. # Flushes/Person-day	10	10	10	10	10	10
Capacity Req'd/day (gals) 89.1 141.2 68.9 NA NA NA NA Adj. Capacity Req'd w Buffer 111.4 176.6 86.2 NA NA NA NA NA Tank Capacity per Car (gals) 100 100 100 100 NA	Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Adj. Capacity Req'd w' Buffer 111.4 176.6 86.2 NA NA NA NA Continuous Service Hours Supported 22 14 28 NA NA NA NA NA NA NA As a percentage of 72 hours 30% 19% 39% NA	Flush Fluids/day (gals)	139.5	221.1	107.9	NA	NA	NA
Tank Capacity per Car (gals)         100         100         100         NA         NA         NA           Continuous Service Hours Supported As a percentage of 72 hours         22         14         28         NA         NA         NA         NA           As a percentage of 72 hours         30%         19%         39%         NA         NA         NA           Probable Service Hours per Day         13.1         <	Capacity Req'd/day (gals)	89.1	141.2	68.9	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours         22 30%         14 19%         28 39%         NA NA         NA NA         NA NA         NA NA           Probable Service Hours per Day         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         13.1         NA	Adj. Capacity Req'd w/ Buffer	111.4	176.6	86.2	NA	NA	NA
As a percentage of 72 hours 30% 19% 39% NA NA NA NA NA Probable Service Hours per Day 13.1 13.1 13.1 13.1 13.1 13.1 13.1 13.	Tank Capacity per Car (gals)	100	100	. 100	NA	.NA	∴ NA
Service Days Supported         1.6         1.0         2.1         NA         NA         NA           As a percentage of 3 days         54.82%         34.59%         70.87%         NA         NA         NA           Consecutive Trips before pumpout:         3.0         2.0         4.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$8,000         \$8,000         \$8,000         NA         NA         NA           Toilet Cost per Car         \$6,000         \$6,000         \$6,000         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         \$14,000         NA         NA         NA         NA           Collection System per Car         \$576         \$576         \$576         NA         NA         NA         NA           Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA         NA           - Total Installation Cost         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152         \$1,152	Continuous Service Hours Supported As a percentage of 72 hours						
As a percentage of 3 days 54.82% 34.59% 70.87% NA NA NA NA NA Consecutive Trips before pumpout 3.0 2.0 4.0 NA NA NA NA NA CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 \$8,000 NA NA NA NA Toilet Cost per Car \$6,000 \$6,000 NA NA NA NA NA CAPITAL Equip Cost \$14,000 \$14,000 \$14,000 NA NA NA NA NA Equipment Installation  Collection System per Car \$576 \$576 \$576 NA NA NA NA Toilet Cost per Car \$556 \$576 NA NA NA NA NA Toilet Cost per Car \$576 \$576 \$576 NA NA NA NA NA Toilet Cost per Car \$576 \$576 \$576 NA NA NA NA NA Toilet Cost per Car \$576 \$576 \$576 NA	Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
As a percentage of 3 days 54.82% 34.59% 70.87% NA NA NA NA NA Consecutive Trips before pumpout 3.0 2.0 4.0 NA NA NA NA NA NA CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 \$8,000 NA NA NA NA Toilet Cost per Car \$6,000 \$6,000 NA NA NA NA NA CAPITAL Equip Cost \$14,000 \$14,000 \$14,000 NA NA NA NA NA Equipment Installation  Collection System per Car \$576 \$576 \$576 NA NA NA NA Toilet Cost per Car \$576 \$576 \$576 NA NA NA NA Toilet Cost per Car \$576 \$576 \$576 NA NA NA NA Toilet Cost per Car \$576 \$576 \$576 NA NA NA NA NA Toilet Cost per Car \$576 \$576 \$576 NA	Service Days Supported	1.6	1.0	2.1	NA	NA	NA
CAPITAL COSTS         Collection System per Car       \$8,000       \$8,000       NA       NA       NA         Toilet Cost per Car       \$6,000       \$6,000       NA       NA       NA         - Total Equip Cost       \$14,000       \$14,000       \$14,000       NA       NA       NA         Equipment Installation       Collection System per Car       \$576       \$576       \$576       NA       NA       NA         Toilet Cost per Car       \$576       \$576       \$576       NA       NA       NA         - Total Installation Cost       \$1,152       \$1,152       \$1,152       NA       NA       NA		54.82%	34.59%	70.87%	, NA	NA	NA
Collection System per Car         \$8,000         \$8,000         \$8,000         NA         NA         NA         NA           Toilet Cost per Car         \$6,000         \$6,000         \$6,000         NA         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         NA         NA         NA         NA           Equipment Installation         Collection System per Car         \$576         \$576         NA         NA         NA           Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA           - Total Installation Cost         \$1,152         \$1,152         \$1,152         NA         NA         NA	Consecutive Trips before pumpout	3.0	2.0	4.0	. NA	NA .	·NA
Collection System per Car         \$8,000         \$8,000         \$8,000         NA         NA         NA         NA           Toilet Cost per Car         \$6,000         \$6,000         \$6,000         NA         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         NA         NA         NA         NA           Equipment Installation         Collection System per Car         \$576         \$576         NA         NA         NA           Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA           - Total Installation Cost         \$1,152         \$1,152         \$1,152         NA         NA         NA	CAPITAL COSTS						
Toilet Cost per Car         \$6,000         \$6,000         \$6,000         NA         NA         NA         NA           - Total Equip Cost         \$14,000         \$14,000         \$14,000         NA         NA         NA         NA           Equipment Installation         Collection System per Car         \$576         \$576         \$576         NA         NA         NA           Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA           - Total Installation Cost         \$1,152         \$1,152         \$1,152         NA         NA         NA		\$8,000	\$8,000	\$8,000	· NA	NA	NA
- Total Equip Cost \$14,000 \$14,000 \$14,000 NA NA NA Equipment Installation  Collection System per Car \$576 \$576 NA NA NA NA Toilet Cost per Car \$576 \$576 NA NA NA NA - Total Installation Cost \$1,152 \$1,152 \$1,152 NA NA NA NA NA	· ,			·			
Equipment Installation           Collection System per Car         \$576         \$576         NA         NA         NA           Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA           - Total Installation Cost         \$1,152         \$1,152         \$1,152         NA         NA         NA	•						
Collection System per Car         \$576         \$576         \$576         NA         NA         NA           Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA         NA           - Total Installation Cost         \$1,152         \$1,152         \$1,152         NA         NA         NA         NA							
Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA           - Total Installation Cost         \$1,152         \$1,152         \$1,152         NA         NA         NA	• •	\$576	\$576	\$576	NA	NA	NA
- Total Installation Cost \$1,152 \$1,152 NA NA NA	- •	•	\$576	<u>\$5</u> 76	<u>NA</u>	<u>NA</u>	<u>NA</u>
	•		<del></del>				
		· ·			NA	NA	NA

Amtrak Route:	Benjamin Franklin		Route Number: #	193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322				*	
Length in Hours:	6.55	•				
Expected Trips per Day:	2					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of	therwise)					
	20000	21000	20100	NA	NA	NA
•	<u>Amcafe</u>	Amcoach	<u>Amclub</u>	<u>NA</u>	. <u>NA</u>	NA
OPERATING COSTS		•				
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA .	NA	NA
Frequency per Year	4	4	4	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA
Annual spare parts cost per yr	<u>\$700</u>	<u>\$700</u>	<u>\$700</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,276	\$1,276	\$1,276	NA NA	NA	NA
Trip Deleted Control						
Trip Related Costs:	•					
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.89	\$1.41	\$0.69	NA	NA	NA
- Pump out minutes	1.49	2.35	1.15	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$3.03</u>	\$4.80	\$2.34	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$15.92	\$18.21	\$15.03	NA	, NA	NA
Train Delay:	· ·	•		•	1	
- Pump out volume reg'd	0	0	0	. NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	-0		NA NA	NA NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$16	\$18	\$15	NA	NA	ŅΑ
					<del></del>	
Total # Cars in fleet	45 .	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	, NA	NA
Adjusted Total Car-days	13,140	77 672	7,008	NA	NA	NA
Days per Trip (min. of 1)	10,740	1	1	•	1	1
Bayopar Tip (IIIIII of Ty	•	-	<u> -</u>	1	<u> </u>	_
Annual Oprtng Trip Related per Car	\$4,649	\$5,319	\$4,390	NA	NA	NA
Annual Non-Trip Related per Car	\$1,276	\$1,276	\$1,276	NA	NA	NA
				4		
Annual Opring Trip Related per Car Type	\$209,205	\$1,414,777	\$105,354	NA	NA	NA
Annual Non-Trip Related per Car Type	\$57,420	\$339,416	<u>\$30,624</u>	<u>NA</u>	<u>NA</u>	. <u>NA</u>
					•	
Total OPRTNG COST per Car	\$5,925	\$6,595	\$5,666	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	NA
Total OPRTNG COST for all cars	, \$966 605	¢1 754 100	\$10E 070	NIA .		NA
	\$266,625	\$1,754,193	\$135,978	NA	NA NA	100000000000000000000000000000000000000
Total CAPITAL COST for all cars	\$681,840	\$4,030,432	\$363,648	NA	NA	NA

C4.6 Metroliner, Washington DC-New York

Metroliner Amtrak Route: Route Number: #200

Origin/Destination:

Washington DC-New York

Length in Miles: Length in Hours:

225 2.78

Expected Trips per Day:

6

Manufacturer: Equipment:

Monogram Modified Vacuum

Scenario:

Unfavorable

* All data on per car basis (unless noted	otherwise)					
·	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	23 2	60 2	33 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA .	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	8.00	. 8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	14.5	37.8	20.8	NA	NA	NA .
Capacity Req'd/day (gals)	17.2	45.0	24.7	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	21.6	56.2	30.9	NA	NA	NA
Tank Capacity per Car (gals)	. 235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	262 363%	100 139%	182 253%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	15.7	6.0	10.9	NA	NA	NA
As a percentage of 3 days	522.78%	200.40%	364.36%	NA	NA	NA
Consecutive Trips before pumpout	94.0	. 36.0	65.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	ŅA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	. <u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	NA_	NA NA	NA NA

Metroliner

Route Number:

#200

Origin/Destination:

Length in Miles: Length in Hours: Washington DC-New York 225

2.78 6

Expected Trips per Day:

Manufacturer: Equipment:

Monogram

Modified Vacuum

Scenario:	Unfavorable					
* All data on per car basis (unless noted of	otherwise)					
•	20900	21900	20970	NA	NA	NA
005047110 00070	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	4	4	4	4	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$576	NA	NA NA	NA
Annual spare parts cost per yr	\$1,300	\$1,30 <u>0</u>	\$1,300	<u>NA</u>	NA NA	NA NA
Total- Opring Non-Trip Related	\$1,876	\$1,876	\$1,876	NA	NA	NA
Trip Related Costs:					·	
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	. \$0	\$0	<b>\$</b> O	\$0	<b>\$</b> 0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.17	\$0.45	\$0.25	NA	NA	NA
- Pump out minutes	0.29	0.75	0.41	NA	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$1.76</u>	<u>\$4.59</u>	<u>\$2.52</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.93	\$17.04	\$14.77	NA	NA	NA
Train Delay:						
- Pump out volume reg'd	0	0	. 0	NA	NA	NA
-# of stops req'd	0	0	0	NA	· NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)		<del>-</del> 0		NA NA	NA NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA ·	NA
Subtotal- Oprtng Trip Related	\$14	\$17	\$15	NA	NA	NA
	•					
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,796	14,600	3,796	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Dayo por 11.p (1.m. o. 1)	·	<u> </u>	<u></u>	<u> -</u>	<u> </u>	<u> </u>
Annual Oprtng Trip Related per Car	\$4,068	\$4,975	\$4,313	, NA	NA	NA
Annual Non-Trip Related per Car	\$1,876	\$1,876	\$1,876	NA	NA	NA
•						
Annual Oprtng Trip Related per Car Type	\$52,885	\$248,775	\$56,073	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$24,388</u>	\$93,800	<u>\$24,388</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,944	\$6,851	\$6,189	NA .	NA	NA
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	NA ·	NA
			. , -			
Total OPRTNG COST for all cars	\$77,273	\$342,575	\$80,461	NA NA	NA	NA
Total CAPITAL COST for all cars	\$364,208	\$1,400,800	\$364,208	NA	NA	NA

Amtrak Route: Metroliner Route Number: #200

Origin/Destination: Length in Miles: Washington DC-New York

225

Length in Hours: Expected Trips per Day: 2.78 6

Manufacturer: Equipment:

Monogram Self-Cont'd Recirc

Unfavorable

Scenario:

* All data on per car basis (unless noted	•					
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA NA	NA NA	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated	23	60	33	NA NA	NA NA	NA.
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)					-	
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Capacity Req'd/day (gals)	7.2	18.7	10.3	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	9.0	23.4	12.9	NA	NA	, NA
Tank Capacity per Car (gals)	27	27	27	NA .	NA "	MA
Continuous Service Hours Supported As a percentage of 72 hours	72 100%	28 38%	50 70%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16,68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	4.3	1.7	3.0	NA	NA	NA
As a percentage of 3 days	144.34%	55.33%	100.60%	NA	NA	NA
Consecutive Trips before pumpout	25.0	9.0	18.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	\$6,500	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation	•					
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$576	, NA	NA ·	NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA	NA	NA NA

Metroliner

Route Number:

#200

Origin/Destination:

Length in Miles:

Washington DC-New York

225

Length in Hours: Expected Trips per Day: 2.78 6

Manufacturer: Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Unfavorable

* All data on per car basis (unless noted o	therwise)					
•	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 <u>Met-Sryc Club</u>	NA NA	NA NA	NA <u>NA</u>
OPERATING COSTS		,	<del></del>	_		
Non-Trip Related Costs:		<b></b>	A			
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	NA
Frequency per Year	4	4	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$2,304	\$2,304	\$2,304	NA	NA	NA
Annual spare parts cost per yr	\$32 <u>5</u>	<u>\$325</u>	<u>\$325</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$2,629	\$2,629	\$2,629	NA NA	NA -	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing			N.			
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$O
Pump out and Disposal						•
- Pump out Cost	\$0.07	\$0.19	\$0.10	NA:	NA	NA
- Pump out minutes	0.12	0.31	0.17	NA	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$0.95</u>	<u>\$2.47</u>	<u>\$1.36</u>	<u>NA</u>	<u>NA</u>	<u>ŅA</u>
Subtotal- End of Day/Trip Srvc	\$13.02	\$14.66	\$13.46	NA	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	. 0	0	0	NA	NA	NA-
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	- NA
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$13	\$15	\$13	NA NA	NA	NA NA
Total # Cars in fleet	13	50	13	NA NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,796	14,600	3,796	· NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3.802	\$4,280	\$3,931	NA	NA	NA
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$2,629	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$49,421	\$214,017	\$51,103	NA	. NA	NA
Annual Non-Trip Related per Car Type	\$34,177	\$131,450	\$34,177	<u>NA</u>	NA	<u>NA</u>
				_		_
Total OPRTNG COST per Car	\$6,431	\$6,909	\$6,560	NA	NA	'NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	NA	NA	NA
Total OPRTNG COST for all cars	\$83,598	\$345,467	\$85,280	NA	NA	NA
Total CAPITAL COST for all cars	\$91,988	\$353,800	\$91,988	NA	NA.	NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles: Length in Hours: 225 2.78

6

Expected Trips per Day:

Manufacturer: Equipment: Microphor Gravity

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	otherwise)					
٠.	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA NA	NA NA	NA <u>N</u> A
				<del></del>	<del></del>	
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	23 2	60 2	33 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10 ,	. 10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	39.6	103.2	56.8	NA	NA	NA
Capacity Req'd/day (gals)	34.7	90.4	49.7	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	43.3	113.1	62.2	NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	166 231%	64 88%	116 161%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	10.0	3.8	6.9	NA	NA	NA
As a percentage of 3 days	332.00%	127.27%	231.39%	NA	NA	NA
Consecutive Trips before pumpout	59.0	22.0	41.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	\$10,000	\$10,000	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u> ·	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA	· NA	NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York 225

Length in Miles: Length in Hours:

2.78 6

Expected Trips per Day: Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Unfavorable

Scenario:	Unfavorable					
* All data on per car basis (unless noted of	otherwise)					
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA NA	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:	<del>,</del>				_	. —
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>4</u>	. <u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA
Annual spare parts cost per yr	<u>\$1,000</u>	<u>\$1,000</u>	<u>\$1,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,576	\$1,576	\$1,576	NA	NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.35	\$0.90	\$0.50	NA	NA	NA
- Pump out minutes	0.58	1.51	0.83	NA	NA	. NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	· NA	NA
- Waste Disposal	<u>\$3.54</u>	\$9.23	<u>\$5.07</u>	<u>NA</u>	<u>NA</u>	NA
Subtotal- End of Day/Trip Srvc	\$15.88	\$22.13	\$17.57	NA	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	· NA	NA	NA
- # of stops req'd	. 0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$16	\$22	\$18	NA	NA	NA NA
Total # Cars in fleet	13	50	13	NA	NA	NA.
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,796	14,600	3,796	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$4,638	\$6,462	\$5,131	NA	NA	NA
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$1,576	. NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$60,293	\$323,099	\$66,702	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$20,488</u>	<u>\$78,800</u>	<u>\$20,488</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COS/T per Car	\$6,214	\$8,038	\$6,707	NA	NA	NA
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	NA
Total OPRING COST for all cars	\$80,781	\$401,899	\$87,190	NA	NA NA	NA NA
Total CAPITAL COST for all cars	\$274,976	\$1,057,600	\$274,976	NA	NA ,	NA NA

Amtrak Route: Metroliner Route Number: #200

Amtrak Route: Origin/Destination:

Washington DC-New York

Length in Miles: Length in Hours: 225 2.78

Expected Trips per Day:

2.78 6

Manufacturer:

Evac

Equipment:	Ultimate					
Scenario:	Unfavorable					
* All data on per car basis (unless noted	dotherwise)					•
	20900	21900	20970	NA .	NA	NA
	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	4	. 1	NA	NA	NA
Capacity (# people) - seated	23 2	60 2	33	NA NA	NA NA	NA NA
Toilets per car  Average persons/toilet on train	11.5	30.0	2 16.5	NA NA	NA NA	NA NA
Average persons/roller on train	71.5	30.0	10.5	147	11/2	NA
Car Waste Data (per car)	•					
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	· NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals).	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	10.8	28.2	15.5	NA <sub>.</sub>	NA	NA
Capacity Req'd/day (gals)	14.7	38.3	21.1	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	18.4	47.9	26.3	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours.	261 363%	100 139%	182 253%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	15.7	6.0	10.9	NA	NA	NA
As a percentage of 3 days	522.38%	200.25%	364.08%	. NA	NA	NA
Consecutive Trips before pumpout	94.0	36.0	65.0	NA ·	NA	NA
CAPITAL COSTS					`	
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	. <u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA	NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles: Length in Hours: 225

Expected Trips per Day:

2.78 6

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

<ul> <li>All data on per car basis (unless noted other)</li> </ul>	nerwise)					
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA <u>NA</u>	NA <u>NA</u>	NA NA
OPERATING COSTS				_		
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	4	4	4	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA
Annual spare parts cost per yr .	<u>\$890</u>	<u>\$890</u>	<u>\$890</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,466	\$1,466	\$1,466	NA NA	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal		•				
- Pump out Cost	\$0.15	\$0.38	\$0.21	NA	NA	NA
- Pump out minutes	0.24	0.64	0.35	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$1.50</u>	<u>\$3,91</u>	<u>\$2,15</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.65	\$16.29	\$14.36	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	. NA
- Pump out minutes	0.0	0.0	. 0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$14	\$16	\$14	NA	NA NA	NA NA
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,796	14,600	3,796	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,984	\$4,757	\$4,193	. NA	NA	NA
Annual Non-Trip Related per Car	\$1,466	\$1,466	\$1,466	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$51,798	\$237,865	\$54,513	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$19,058</u>	<u>\$73,300</u>	<u>\$19,058</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,450	\$6,223	\$5,659	NA	NA	ə NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816 ·	NA	NA	NA
Total OPRTNG COST for all cars	\$70,856	\$311,165	\$73,571	NA	NA	NA
Total CAPITAL COST for all cars	\$257,608	\$990,800	\$257,608	NA	NA	NA

Metroliner Amtrak Route: #200 Route Number:

Origin/Destination: Length in Miles:

Washington DC-New York

225

2.78 6

Expected Trips per Day: Manufacturer:

Length in Hours:

Railtech

Equipment:

WTS 8300

Scenario:

Unfavorable

Oceniano,	Cinavolable					
* All data on per car basis (unless noted	l otherwise)					
·	20900	21900	20970	NA	NA	NA
•	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	· <u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated	23	60	33	NA	NA	`NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	. NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	60.5	157.9	86.8	NA	NA	. NA
Capacity Req'd/day (gals)	49.2	128.5	70.7	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	61.6	160.6	88.3	· NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	" NA
Continuous Service Hours Supported As a percentage of 72 hours	39 54%	15 21%	27 38%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
. Service Days Supported	2.3	. 0.9	1.6	NA	NA	NA
As a percentage of 3 days	77.92%	29.87%	54.31%	- NA	NA	NA
Consecutive Trips before pumpout	14.0	5.0	9.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA NA	NA	NA
Toilet Cost per Car	· <u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA .	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA NA	NA -	NA NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles:

225 2.78

Length in Hours: Expected Trips per Day:

6

Manufacturer:

Railtech

Equipment: Scenario:

WTS 8300 Unfavorable

\* All data on per car basis (unless noted otherwise)

All data of per car basis (unless noted o						
	20900	21900	20970	NA	NA	NA
ODERATING COCTO	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	4	4	4	4	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$57 <b>6</b>	\$576	NA NA	NA NA	NA
Annual spare parts cost per yr	\$70 <u>0</u>	\$70 <u>0</u>	\$700	NA NA	NA NA	NA NA
Total- Opring Non-Trip Related	\$1,276	\$1,276	\$1,276	NA NA	NA	NA
Total Opining Non-Implicated	Ψ1,270	V1,210	Ψ1,210			
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	*-	•-	**	*-	*-	•-
- Pump out Cost	\$0.49	\$1.28	\$0.71	NA	NA	NA
- Pump out minutes	0.82	2.14	1.18	NA NA	NA NA	NA.
- Connect/Disc. minutes	0.0	0.0	0.0	NA NA	NA NA	NA.
- Waste Disposal	\$5.0 <u>2</u>	\$13.10	\$7.21	NA NA	NA NA	NA
Subtotal- End of Day/Trip Srvc	\$17.52	\$26.39	\$19.9 <b>1</b>	NA	NA	NA
Train Delay:	\$17.52	Ψ20.39	ψ19.91	NA		NA
- Pump out volume req'd	0	0	0	NA	NA	NA
· · · · · · · · · · · · · · · · · · ·	0	0	0	NA NA	NA NA	NA NA
- # of stops req'd	0.0	0.0	0.0	NA NA	NA NA	NA NA
- Pump out minutes - Connect/Disc. minutes						
	<u>0.0</u> 0	<u>0.0</u> 0	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)			0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0 200	NA	NA	NA
Subtotal- Opring Trip Related	\$18	\$26	\$20	NA NA	NA	NA NA
Takal M. On on Smills ak	10	<b>50</b>	40	3.13	314	
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Total Allitual Gal-days	4,745	10,230	4,745	NA	INA	147
Adjusted Total Car-days	3,796	14,600	3,796	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
22,0 pc/p ( c/	·	-	<u> -</u>	<u> </u>	<del></del>	_
Annual Oprtng Trip Related per Car	\$5,114	\$7,705	\$5,815	NA	NA	NA
Annual Non-Trip Related per Car	\$1,276	\$1,276	\$1,276	NA	NA	NA
•	***	* .,	4.1	•		
Annual Opring Trip Related per Car Type	\$66,488	\$385,258	\$75,590	NA	NA	NA
Annual Non-Trip Related per Car Type	\$16,58 <u>8</u>	\$63,800	<u>\$16,588</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
	<del></del>	<del></del>	<del></del>	<del></del>	_	_
Total OPRTNG COST per Car	\$6,390	\$8,981	\$7,091	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	NA
•		•				
Total OPRTNG COST for all cars	\$83,076	\$449,058	\$92,178	NA	NA	NA
Total CAPITAL COST for all cars	\$196,976	\$757,600	\$196,976	NA	NA	NA
The Court of the Caro	.ψ190,970	Ψ/0/,000	ψ190,970	MA		tide i vi <b>v</b>

C4.7 Hudson Highlander, Albany-New York

Langth in Malein:   142   14	Amtrak Route: Origin/Destination:	Hudson Highlander Albany-New York C		Route Number:	#242		
Length in Hours: 2.62 Expected Trips per Duy: 6 Manufacturer: Modilised Vacuum Sonarko: Unitavrable *All data on per car basis (unless noted of threwise)  *All data on per car basis (unless noted of threwise noted o		•	•				
Expected Trips per Day:		2.62				•	
Manufacturer   Modified Vacuum   Modified Vacu	<del>-</del>	6	•		*		*
*All data on per car basis (unless noted otherwise)  *All data on per car basis (unless noted otherwise)  *All data on per car basis (unless noted otherwise)  *All data on per car basis (unless noted otherwise)  *Amcesach  *Amcesac		Monogram					
Seanario:   Unfavorable   Unfavorable   Validata on per car basis (unless noted otherwise)   Validata of Validata on Validata of V	Equipment:	Modified Vacuum		•			
*All data on per car basis (unless noted otherwise)    21000	Scenario:	Unfavorable					
21000							
Managean	7 ill dele on per our besie (direct retor	•	20200	21800	NA	NA	NA
Capacity (# people) - seated         84         23         60         NA         NA         NA           7 collets per car         2         2         2         NA         NA         NA           Average persons/toilet on train         42.0         11.5         30.0         NA         NA         NA           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         37.72         10.33         26.94         NA         NA         NA           # Flushes/Person-day         8.00         8				Amcoach	<u>NA</u>	<u>NA</u>	NA.
Capacity (# people) - seated         84 2 2 2 2 2 NA NA NA NA NA NA NA Average persons/foliet on train         84 22 2 2 2 NA Average persons/foliet on train         NA N	Quantity of cars	3	1	1	NA	NA	NA
Toilets per car         2         2         2         2         NA         NA         NA           Average persons/toilet on train         42.0         11.5         30.0         NA         NA         NA           Car Waste Data (per cari)           Black Water:         ****         ****         ****         ****         ****         ****         NA         NA         NA         NA         NA         ****         ****         ****         ****         ****         ****         ****         ****         ****         ****         ****         ****         ****         NA         NA         NA         NA         NA         ****         NA         ****         NA         NA         NA         NA         ****         NA         ****         NA         NA<		84	23	60	NÀ	NA	NA
Black Water	Toilets per car	2		2	NA	NA	NA
Black Water:   Human Waste/day (gals)   37.72   10.33   26.94   NA	Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Black Water:   Human Waste/day (gals)   37.72   10.33   26.94   NA	•						
Human Waste/day (gals)   37.72   10.33   26.94   NA   NA   NA   #Flushes/Person-day   8.00   9.00	Car Waste Data (per car)						
# Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Black Water:						
Flush efficiency adjustment   1.25	Human Waste/day (gals)	37.72	10.33	26.94	NA NA	NA	NA
Adj. # Flushes/Person-day         10	# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Fluish Fluids/flush (gals)         0.063         0.063         0.063         0.063         0.063         0.063         0.063         0.063         0.063         0.063         0.063         0.063         0.063         0.063         Plush Fluids/day (gals)         52.9         14.5         37.8         NA         NA         NA         NA           Capacity Req'd/day (gals)         59.4         16.3         42.4         NA         NA         NA         NA         NA         NA         ANA         ANA<	Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Fluids Fluids/day (gals)         52.9         14.5         37.8         NA         NA         NA           Capacity Req d/day (gals)         59.4         16.3         42.4         NA         NA         NA           Adj. Capacity Req'd w/ Butfer         74.2         20.3         53.0         NA         NA         NA           Tank Capacity per Car (gals)         235         235         235         235         235         235         235           Continuous Service Hours Supported As a percentage of 72 hours         76         278         106%         NA         NA         NA         NA           As a percentage of 72 hours         15.72	Adj. # Flushes/Person-day	10	10	10	10	10	10
Capacity Req'd/day (gals)         59.4         16.3         42.4         NA         NA         NA           Adj. Capacity Req'd w' Buffer         74.2         20.3         55.0         NA         NA         NA           Tank Capacity Per Car (gals)         235         235         235         235         235         235           Continuous Service Hours Supported As a percentage of 72 hours         76         278         106         NA         NA         NA           As a percentage of 72 hours         106%         386%         148%         NA         NA         NA           Probable Service Hours per Day         15.72         15.7	Flush Fluids/flush (gals)	0.063	0.063	0.063	. 0.063	0.063	0.063
Adj. Capacity Req'd w/ Buffer         74.2         20.3         53.0         NA         NA         NA           Tank Capacity per Car (gals)         235         235         235         235         235         235           Continuous Service Hours Supported As a percentage of 72 hours         76         278         106%         NA         NA         NA         NA           As a percentage of 72 hours         15.72	Flush Fluids/day (gals)	52.9	. 14.5	37.8	NA	NA	, NA
Tank Capacity per Car (gals)         235	Capacity Req'd/day (gals)	59.4					
Continuous Service Hours Supported As a percentage of 72 hours         76 106%         278 386%         106 148%         NA N	Adj. Capacity Req'd w/ Buffer	74.2	20.3	53.0	NA	NA	, NA
As a percentage of 72 hours 106% 386% 148% NA NA NA NA NA  Probable Service Hours per Day 15.72 15.72 15.72 15.72 15.72 15.72  Service Days Supported 4.8 17.7 6.8 NA NA NA NA NA As a percentage of 3 days 161.16% 588.58% 225.62% NA	Tank Capacity per Car (gals)	235	235	235	235	235	235
Service Days Supported         4.8         17.7         6.8         NA         NA         NA           As a percentage of 3 days         161.16%         588.58%         225.62%         NA         NA         NA           Consecutive Trips before pumpout         29.0         105.0         40.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$21,000 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>							
As a percentage of 3 days 161.16% 588.58% 225.62% NA NA NA NA NA  Consecutive Trips before pumpout 29.0 105.0 40.0 NA NA NA NA NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$5,000 \$5,000 \$5,000 NA NA NA NA  - Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$5,000 \$5,000 NA NA NA NA NA  Toilet Cost per Car \$1,440 \$1,4	Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Consecutive Trips before pumpout         29.0         105.0         40.0         NA         NA         NA           CAPITAL COSTS         Collection System per Car         \$21,000	Service Days Supported	4.8	17.7	6.8	NA	, NA	NA
CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$5,000 \$5,000 \$5,000 NA NA NA NA  - Total Equip Cost \$26,000 \$26,000 NA NA NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$576 \$576 NA NA NA NA NA  - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA NA	As a percentage of 3 days	161.16%	588.58%	225.62%	NA NA	NA	NA
Collection System per Car         \$21,000         \$20,000         \$20,0	Consecutive Trips before pumpout	29.0	105.0	40.0	NA	NA NA	NA
Toilet Cost per Car         \$5,000         \$5,000         \$5,000         NA         NA         NA         NA           - Total Equip Cost         \$26,000         \$26,000         \$26,000         NA         NA         NA           Equipment Installation         Collection System per Car         \$1,440	CAPITAL COSTS						
- Total Equip Cost         \$26,000         \$26,000         \$26,000         NA         NA         NA           Equipment Installation         Collection System per Car         \$1,440 <td>Collection System per Car</td> <td>• •</td> <td>\$21,000</td> <td>\$21,000</td> <td>\$21,000</td> <td>\$21,000</td> <td>\$21,000</td>	Collection System per Car	• •	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Equipment Installation         Collection System per Car         \$1,440	Toilet Cost per Car	\$5,000	<u>\$5,000</u>	<u>\$5,000</u>			
Collection System per Car         \$1,440	- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Toilet Cost per Car         \$576         \$576         \$576         NA         NA         NA           - Total Installation Cost         \$2,016         \$2,016         \$2,016         NA         NA         NA	Equipment Installation						
- Total Installation Cost \$2,016 \$2,016 NA NA NA	Collection System per Car	\$1,440	. \$1,440	\$1,440	\$1,440	\$1,440	\$1,440
	Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total Capital Cost \$28,016 \$28,016 NA NA NA	- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
	Total Capital Cost	\$28,016	\$28,016	\$28,016	NANA	NA	NA NA

Amtrak Route: Origin/Destination: Hudson Highlander

Albany-New York City

142

6

Length in Miles: Length in Hours:

2.62

Expected Trips per Day:

Manufacturer:

Monogram

Scenario:	Unfavorable		•	•	•	
* All data on per car basis (unless noted o	therwise)			•		
4	21000 <u>Amcoach</u>	20200 Amdinette	21800 <u>Amcoach</u>	NA NA	NA NA	N <u>N</u>
OPERATING COSTS	Milodadi	7 ATTOMO	Minodair	13/-	130	
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	1
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$576	NA	. NA	N
Annual spare parts cost per yr	<u>\$1,300</u>	<u>\$1,300</u>	<u>\$1,300</u>	<u>NA</u>	<u>NA</u>	<u>1</u>
Total- Opring Non-Trip Related	\$1,876	\$1,876	\$1,876	NA .	NA NA	N
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•	<b>V</b> -	, , ,	₹ 7	<del>* -</del>	•
- Pump out Cost	\$0.59	\$0.16	\$0.42	NA	NA	N
- Pump out minutes	0.99	0.27	0.71	NA	NA NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	N
- Waste Disposal	\$6.06	\$1.66	<b>\$4.33</b>	<u>NA</u>	NA	1
Subtotal- End of Day/Trip Srvc	\$18.65	\$13.82	\$16.75	NA	NA	
Train Delay:	•					
- Pump out volume reg'd	0	0	0	NA	NA	N
- # of stops regid	0	0	0	NA	NA	N
- Pump out minutes	0.0	0.0	0.0	NA	NA	N
- Connect/Disc. minutes	0.0	0.0	. 0.0	<u>NA</u>	NA	1
- Total Time Delay(mins/car)			0	NA NA	NA	· - N
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N
Subtotal- Oprtng Trip Related	\$19	\$14	\$17	NA NA	NA	Ŋ
Fotal # Cars in fleet	266	25	31	NA	NA	N
Total Annual Car-days	97,090	9,125	11,315	NA	NA	N
djusted Total Car-days	77,672	7,300	9,052	NA	NA ·	١
Days per Trip (min. of 1)	1	<u>1</u>	1	1	1	:
Annual Oprtng Trip Related per Car	\$5,446	\$4,036	\$4,891	NA	NA	Ν
Annual Non-Trip Related per Car	\$1,876	\$1,876	\$1,876	NA .	NA	N
Annual Opring Trip Related per Car Type	\$1,448,510	\$100,890	\$151,615	NA	NA	N
Annual Non-Trip Related per Car Type	<u>\$499,016</u>	<u>\$46,900</u>	<u>\$58,156</u>	<u>NA</u>	<u>NA</u>	N
Total OPRTNG COST per Car	\$7,322	\$5,912	· \$6,767	NA	NA	N
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	NA	N

Route Number:

#242

Flush efficiency adjustment 1.25 1.25 1.25 1.25 1	
21000 Amcoach         20200 Amdinette         21800 Amcoach         NA NA NA NA NA NA           Quantity of cars         3         1         1         NA N	
Amcoach         Amdinette         Amcoach         NA         NA           Cuantity of cars         3         1         1         NA         NA           Capacity (# people) - seated         84         23         60         NA         NA           Toilets per car         2         2         2         NA         NA           Average persons/toilet on train         42.0         11.5         30.0         NA         NA           Car Waste Data (per car)         Car Waste Data (per car)           Black Water:         Human Waste/day (gals)         37.72         10.33         26.94         NA         NA           # Flushes/Person-day         8.00 </th <th></th>	
Capacity (# people) - seated       84       23       60       NA       NA         Toilets per car       2       2       2       2       NA       NA         Average persons/toilet on train       42.0       11.5       30.0       NA       NA         Car Waste Data (per car)         Black Water:         Human Waste/day (gals)       37.72       10.33       26.94       NA       NA         # Flushes/Person-day       8.00	NA <u>NA</u>
Toilets per car         2         2         2         2         NA         NA           Average persons/toilet on train         42.0         11.5         30.0         NA         NA           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         37.72         10.33         26.94         NA         NA           # Flushes/Person-day         8.00 <td< th=""><th>NA</th></td<>	NA
Average persons/toilet on train       42.0       11.5       30.0       NA       NA         Car Waste Data (per car)         Black Water:         Human Waste/day (gals)       37.72       10.33       26.94       NA       NA         # Flushes/Person-day       8.00 <td< td=""><td>NA NA</td></td<>	NA NA
Black Water: Human Waste/day (gals) 37.72 10.33 26.94 NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1	NA
Human Waste/day (gals)       37.72       10.33       26.94       NA       NA         # Flushes/Person-day       8.00       8.0	
Human Waste/day (gals)       37.72       10.33       26.94       NA       NA         # Flushes/Person-day       8.00       8.0	
# Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.01 8.00 8.00	NA
	.00
	.25
Adj. # Flushes/Person-day 10 10 10 10 10	10
Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 0.000	000
Flush Fluids/day (gals) 0.0 0.0 NA NA	NA
Capacity Req'd/day (gals) 24.7 6.8 17.6 NA NA	NA
Adj. Capacity Req'd w/ Buffer 30.9 8.5 22.1 NA NA	NA
Tank Capacity per Car (gals) 27 27 27 NA NA NA	NA
Continuous Service Hours Supported 21 77 29 NA NA As a percentage of 72 hours 29% 106% 41% NA NA	NA NA
Probable Service Hours per Day         15.72         <	.72
Service Days Supported 1.3 4.9 1.9 NA NA	NA
As a percentage of 3 days 44.50% 162.51% 62.29% NA NA	NA
Consecutive Trips before pumpout 8.0 29.0 11.0 NA · NA	NA
CAPITAL COSTS	
Collection System per Car \$0 \$0 \$0 \$0	<b>\$0</b>
Toilet Cost per Car \$6,500 \$6,500 \$6,500 NA NA	<u>NA</u>
- Total Equip Cost \$6,500 \$6,500 NA NA	NA
Equipment Installation	
Collection System per Car \$0 \$0 \$0 \$0	\$0
Toilet Cost per Car <u>\$576</u> <u>\$576</u> <u>NA</u> <u>NA</u>	<u>NA</u>
- Total Installation Cost \$576 \$576 NA NA	NA
Total Capital Cost \$7,076 \$7,076 NA NA	·NA

a

Amtrak Route: Origin/Destination: Hudson Highlander

Route Number:

#242

Albany-New York City

142

Length in Miles: Length in Hours:

2.62 6

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted on	21000 Amcoach	20200 · Amdinette	21800 <u>Amcoach</u>	. NA <u>NA</u>	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:		•				
Labor cost/major servicing	\$576	\$576	\$576	NA .	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$2,304	\$2,304	\$2,304	NA	NA	NA
Annual spare parts cost per yr	<u>\$325</u>	<u>\$325</u>	<u>\$325</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$2,629	\$2,629	\$2,629	NA	NA NA	NA
Trip Related Costs:			•	-		
Toilet maintenance enroute End of Day/Trip Servicing					•	
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Pump out and Disposal			•			
- Pump out Cost	\$0.25	\$0.07	\$0.18	NA	NA	NA
- Pump out minutes	0.41	0.11	0.29	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$3.26</u>	<u>\$0.89</u>	<u>\$2.33</u>	<u>NA</u>	<u>NA</u>	NA
Subtotal- End of Day/Trip Srvc	\$15.51	\$12.96	\$14.51	NA	NA	NA
Train Delay:	•		•			
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	<sup>°</sup> NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0		0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	. \$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$16	\$13	\$15	NA NA	NA NA	NA
Total # Cars in fleet	266	25	31	· NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	77,672	7,300	9,052	NA	NA	NA
Days per Trip (min. of 1)	1	1	_ 1	1	1	1
Annual Oprtng Trip Related per Car	\$4,528	\$3,784	\$4,236	NA	NA	NA
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$2,629	NA	NA	NA
Annual Öprtng Trip Related per Car Type	\$1,204,535	\$94,612	\$131,306	NA	· NA	NA
Annual Non-Trip Related per Car Type	<u>\$699,314</u>	<u>\$65,725</u>	<u>\$81,499</u>	<u>NÀ</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,157	\$6,413	\$6,865	NA	NA	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	NA .	<b>NA</b>	NA
Total OPRTNG COST for all cars	\$1,903,849	\$160,337	\$212,805	NA	NA .	NA
Total CAPITAL COST for all cars	\$1,882,216	\$176,900	\$219,356	NA NA	N <b>A</b>	NA

C4.8 Electric City Express, Schenectady-New York

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per dar basis (dilicus notes	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
					•	
Car Waste Data (per car)		,		•		
Black Water:	•					
Human Waste/day (gals)	12.12	32.33	23.35	17.96	. NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	6.1	16.3	11.8	9.1	NA	NA
Adj. Capacity Req'd w/ Buffer	7.7	20.4	14.7	11.3	NA	NA
Tank Capacity per Car (gals)	13.5	27	13.5	. 13.5	NA	, NA
Continuous Service Hours Supported As a percentage of 72 hours	42 59%	32 44%	22 31%	29 40%	NA · NA	ŇA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	3.5	2.6	1.8	2.4	NA	NA
As a percentage of 3 days	116.44%	87.33%	60.46%	6 78.60%	NA	NA
Consecutive Trips before pumpout	· 13.0	10.0	7.0	9.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	. \$0	\$0
Toilet Cost per Car	<u>\$3,250</u>	<u>\$6,500</u>	<u>\$3,250</u>	<u>\$3,250</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$3,250	\$6,500	\$3,250	\$3,250	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$288	\$576	\$288	\$288	NA	NA
Total Capital Cost	\$3,538	\$7,076	\$3,538	\$3,538	NA	NA NA

Amtrak Route: Hudson Highlander Route Number: #242 Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 20200 21800 NA NA NA <u>Amdinette</u> Amcoach <u>Amcoach</u> NA <u>NA</u> <u>NA</u> Quantity of cars 3 1 NA NA NA Capacity (# people) - seated 84 23 60 NA NA NA Toilets per car 2 2 2 NA NA NΑ 11.5 42.0 30.0 Average persons/toilet on train NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 37.72 10.33 26.94 NA NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 144.5 39.6 103.2 NA NA NA Capacity Req'd/day (gals) 119.3 32.7 85.2 NA NA NA Adj. Capacity Req'd w/ Buffer 149.2 40.8 106.6 NA NΑ NA Tank Capacity per Car (gals) 300 300 300 300 300 300 NA NA Continuous Service Hours Supported 48 176 68 NA. NA As a percentage of 72 hours 67% 245% 94% NA Probable Service Hours per Day 15.72 15.72 15.72 15.72 15.72 15.72 Service Days Supported 3.1 11.2 4.3 NA NA NA As a percentage of 3 days 102.35% 373.78% 143.28% NA NA NA Consecutive Trips before pumpout 18.0 67.0 25.0 NA NA NA CAPITAL COSTS Collection System per Car \$10,000 \$10,000 \$10,000 . \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$10,000 \$10,000 \$10,000 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$20,000 \$20,000 \$20,000 NA NÀ NA Equipment Installation Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576

\$576

\$1,152

\$21,152

\$576

\$1,152

\$21,152

NA

NA

NA

NA

NA

NA

NA

NA

NA

\$576

\$1,152

\$21,152

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Hudson Highlander

Origin/Destination:

Albany-New York City

Length in Miles: Length in Hours:

142 2.62

Expected Trips per Day:

6

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per dar basis (alliess heles of	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:			<del></del>	_		_
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$576	NA	NA ·	NA
Annual spare parts cost per yr	\$1,000	\$1,000	\$1,000	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,576	\$1,576	\$1,576	NA	NA	NA
Trip Related Costs:			·			
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Pump out and Disposal				•		
- Pump out Cost	\$1.19	\$0.33	\$0.85	NA	NA	NA
- Pump out minutes	1.99	0.54	1.42	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	\$12.17	\$3.33	\$8.69	<u>NA</u>	. <u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$25.37	\$15.66	\$21.55	NA	NA	NA
Train Delay:	* *					
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops reg'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA .	NA.	NA
- Connect/Disc. minutes	0.0	0.0	<u>0.0</u>	NA	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)				NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$25	\$16	\$22	NA	NA	NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	77,672	7,300	9,052	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$7,407	\$4,573	\$6,292	NA	NA	NA
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$1,576	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$1,970,220	\$114,316	\$195,044	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$419,216</u>	<u>\$39,400</u>	<u>\$48,856</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$8,983	\$6,149	\$7,868	NA	NA	NA
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$2,389,436 \$5,626,432	\$153,716 \$528,800	\$243,900 \$655,712	NA NA	NA NA	NA NA

Route Number:

#242

					•	
Amtrak Route:	Hudson Highlande	er	Route Number:	#242		
Origin/Destination:	Albany-New York	City	· · · · · · · · · · · · · · · · · · ·	#242		
Length in Miles:	142					
Length in Hours:	2.62		•			
Expected Trips per Day:	6					
Manufacturer:	. Evac					
Equipment:	Ultimate					•
Scenario:	Unfavorable					
* All data on per car basis (unless noted	d otherwise)					
	21000	20200	21800			
	<u>Amcoach</u>	Amdinette	Amcoach	NA NA	NA NA	NA
Quantity of cars	3	1	1		<u>NA</u>	<u>NA</u>
Capacity (# people) - seated	84	23	60	NA NA	NA	NA
Toilets per car	2	2	2	NA NA	NA NA	NA
Average persons/toilet on train	42.0	11,5	30.0	NA NA	NA NA	NA NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37,72	10.33	26.94	NA		
# Flushes/Person-day	8.00	8.00	8.00	8.00	NA n a a a	NA
Flush efficiency adjustment	1.25	1.25	1.25	· =	8.00	8.00
Adj. # Flushes/Person-day	10	10	10	1.25	1.25	1.25
Flush Fluids/flush (gals)	0.047	0.047	0.047	10	. 10	10
Flush Fluids/day (gals)	39.5	10,8	28.2	0.047 NA	0.047 NA	0.047 NA
Capacity Req'd/day (gals)	50.0	40.0				
Adj. Capacity Req'd w/ Buffer	50.6	13.8	36.1	NA	ŅA	NA
Tank Capacity per Car (gals)	63.2	17.3	45.1	NA	NA	NA
tamit superity por our (gails)	200	200	200	200	200	200
Continuous Service Hours Supported	76	277	106	514		
As a percentage of 72 hours	105%	385%	148%	NA " NA	NA NA	ŅA
<b>1</b>					14/1	. NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	. 1570
					10.72	15.72
Service Days Supported	4.8	17.6	6.8	NA	NA NA	NA
As a percentage of 3 days	161.04%	588.13%	225.45%	NA	NA	. NA
Consecutive Trips before pumpout	28.0	105.0	: 40.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	<b>\$40.000</b>	<b>M</b> 4		
Toilet Cost per Car	\$5,800	•	\$12,000	\$12,000	\$12,000	\$12,000
- Total Equip Cost	\$17,800	\$5,800 \$17,800	\$5,800 \$17,800	<u>NA</u>	<u>NA</u>	<u>NA</u>
Equipment Installation	Ψ17,000	\$17,800	\$17,800	NA	NA	NA
Collection System per Car	\$1,440	\$1,440	64 446	<b>A.</b>		
Toilet Cost per Car	<u>\$576</u>	\$1,440 \$576	\$1,440 \$576	\$1,440	\$1,440	\$1,440
- Total Installation Cost	\$2,016	\$2,016	\$576 \$2.016	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total Capital Cost	\$19,816	\$19,816	\$2,016 \$10.816	NA	NA	NA
	<b>415,515</b>	ψ19,010	\$19,816	NA	NA NA	NA NA

Amtrak Route: Hudson Highlander #242 Route Number:

Origin/Destination: Length in Miles:

Albany-New York City

142

Length in Hours: Expected Trips per Day: 2.62 6

Manufacturer:

Evac Ultimate

Equipment:

Scenario: Unfavorable

* All data on per car basis (unless noted ot	herwise)			*		
	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS						
Non-Trip Related Costs:	. 0444	<b>0444</b>	04.44	NIA	NIA	NIA
Labor cost/major servicing	\$144	\$144	\$144	NA	· NA	NA
Frequency per Year	4	<u>4</u>	4	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	, NA
Annual spare parts cost per yr	\$890	<u>\$890</u>	<u>\$890</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,466	\$1,466	\$1,466	NA NA	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.51	\$0.14	\$0.36	NA	NA	NA.
- Pump out minutes	0.84	0.23	0.60	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	ŅA
- Waste Disposal	<u>\$5.16</u>	<u>\$1.41</u>	\$3.68	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$17.66	\$13.55	\$16.05	NA	NA	NA
Train Delay:		·				
- Pump out volume reg'd	-0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	. 0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$18	\$14	\$16	. NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA ::	NA
Adjusted Total Car-days	<b>7</b> 7,672	7,300	9,052	NA ·	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$5,158	\$3,957	\$4,685	NA	NA	. NA
Annual Non-Trip Related per Car	\$1,466	\$1,466	\$1,466	NA	NA	NA
Annual Opring Trip Related per Car Type	\$1,371,928	\$98,919	\$145,240	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$389,956</u>	<u>\$36,650</u>	<u>\$45,446</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$6,624	\$5,423	\$6,151	NA	NA	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	ŅA	NA	NA
Total OPRTNG COST for all cars	\$1,761,884	\$135,569	\$190,686	NA .	NA	NA
Total CAPITAL COST for all cars	\$5,271,056	\$495,400	\$614,296	· NA	NA	NA

Amtrak Route:	Hudson Highlander	r .	Route Number:	#242		
Origin/Destination:	Albany-New York (					<i>i</i>
Length in Miles:	142					
Length in Hours:	2.62					
Expected Trips per Day:	6					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Unfavorable					
* All data on per car basis (unless noted						
THE COLUMN POR COLUMN (AMOUNT NOTICE	21000	20200	21800	NA	NA	NA
4	Amcoach	Amdinette	Amcoach	NA NA	. <u>NA</u>	NA NA
Quantity of cars	3	1	1	NA.	NA	NA.
Capacity (# people) - seated	84	23	60	NA NA	NA.	NA NA
Toilets per car	. 2	2	2	NA	NA NA	NA NA
Average persons/toilet on train	42.0	11.5	30,0	NA	NA	NA
Car Waste Data (per car)				- ,		
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA NA	NA
# Flushes/Person-day	00.8	8.00	8.00	8.00	00.8	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	221.1	60.5	157.9	NA	. NA	NA
Capacity Reg'd/day (gals)	169.5	46.4	121.1	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	211.9	58.0	151.3	NA	NA	NA
Tank Capacity per Car (gals)	. 100	100	100	NA	NA	NA
•		•				
Continuous Service Hours Supported .	11	41	16	NA	NA	NA
As a percentage of 72 hours	16%	57%	22%	s NA	NA	· NA
Brokelie Oresias Haves as Bay	45.70	4 = 70	45.70		40.00	4
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15,72	15.72
Sorving Days Supported	0.7	2.6	10	A1A	<b>514</b>	A14
Service Days Supported	0.7 24.02%	_	1.0	NA	NA NA	NA
As a percentage of 3 days	24.02%	87.73%	33.63%	S NA	NA	NA
Consecutive Trips before pumpout	<b>4.</b> D	. 15.0	6.0	NA	NA	ALA
Consecutive Trips before putripout	4.0	13.0	6.0	IVA	INA	NA
CAPITAL COSTS				,		
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	\$6,000	\$6,000	\$6,000		NA NA	
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA NA	NA NA	<u>NA</u> NA
Equipment Installation	Ψ14,000	Ψ1-7,000	Ψ17,000	INA	, INA	IVA
Collection System per Car	\$576	\$576	\$576	NA	NA	NA
Toilet Cost per Car	\$576 \$576	\$576 \$576	\$576 \$576			
- Total Installation Cost	\$1,152	\$1,152	\$ <u>3576</u> \$1,152	<u>NA</u> NA	<u>NA</u> NA	<u>NA</u> NA
Total Capital Cost	\$1,152 \$15,152	\$1,152 \$15,152	\$1,152 \$15,152	NA NA	NA NA	NA NA
i otai oapitai oost	\$10,102	\$10,102	\$10,102	INA	NA NA	INA

Hudson Highlander

Route Number:

#242

Origin/Destination:

Albany-New York City 142

Length in Miles:

Length in Hours:

2.62

Expected Trips per Day:

6

Manufacturer: Equipment:

Railtech WTS 8300

Unfavorable

Scenario:

* All data on per car basis (unless noted ot)	herwise)			* a		
·	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA
Annual spare parts cost per yr	<u>\$700</u>	<u>\$700</u>	<u>\$700</u>	<u>NA</u> .	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,276	\$1,276	\$1,276	NA NA	NA	· NA
Trip Related Costs:					•	
Toilet maintenance enroute End of Day/Trip Servicing			·			
- Cleaning	\$12	\$12	\$12	NA.	NA	NA
- Light Repair	\$0	\$0	\$0	. \$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.69	\$0.46	\$1.21	NA	NA	NA
- Pump out minutes	2.82	0.77	2.02	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	\$17.29	<u>\$4.73</u>	<u>\$12.35</u>	<u>NA</u>	· <u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$30.98	\$17.20	\$25.56	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	<u>0.0</u>	0.0	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA .
Subtotal- Oprtng Trip Related	\$31	\$17	\$26	NA	NA NA	NA
Total # Cars in fleet	. 266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	· ŇA
Adjusted Total Car-days	77,672	7,300	9,052	NA	NA	NA
Days per Trip (min. of 1)	1	1	<u>1</u>	1	1	1
Annual Oprtng Trip Related per Car	\$9,047	\$5,022	\$7,463	NA	NA	NA
Annual Non-Trip Related per Car	\$1,276	\$1,276	\$1,276	NA	NA	NA
Annual Opring Trip Related per Car Type	\$2,406,532	\$125,544	\$231,364	NA	NA .	NA
Annual Non-Trip Related per Car Type	<u>\$339,416</u>	<u>\$31,900</u>	<u>\$39,556</u>	<u>NA</u>	. <u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$10,323	\$6,298	\$8,739	NA	NA	·NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	ŅA
Total OPRTNG COST for all cars	\$2,745,948	\$157,444	\$270,920	NA NA	NA	NA
Total CAPITAL COST for all cars	\$4,030,432	\$378,800	\$469,712	NA .	NA:	NA NA

Electric City Express Amtrak Route: Route Number: #250 Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 151-Odd 170 170 150-Even NA NA Turbo Power Club Turbo Coach Turbo Cafe Turbo Power Coac <u>NA</u> <u>NA</u> Quantity of cars 3 NA NA 72 2 Capacity (# people) - seated 27 52 40 NA NA Toilets per car NA NA NA Average persons/toilet on train 27.0 36.0 52.0 40.0 NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 12.12 32.33 23.35 17.96 NΆ NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 17.0 45.4 32.8 25.2 NA NA Capacity Req'd/day (gals) 14.7 39.2 28.3 21.8 NA NA 35.4 27.2 Adj. Capacity Req'd w/ Buffer 18.4 49.0 NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 307 426% 159 207 288% Continuous Service Hours Supported 115 160% NΑ NA 221% As a percentage of 72 hours NA NA Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 12.12 Service Days Supported 25.3 9.5 13.1 17.1 NA NA As a percentage of 3 days 843.47% 316.30% 437.95% 569.34% NA NA Consecutive Trips before pumpout 101.0 37.0 52.0 68.0 NA NA CAPITAL COSTS Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$2,500 \$5,000 \$2,500 \$2,500 <u>NA</u> <u>NA</u> - Total Equip Cost \$23,500 \$26,000 \$23,500 \$23,500 NA NA Equipment Installation

\$1,440

<u>\$576</u>

\$2,016

\$28,016

\$1,440

\$288

\$1,728

\$25,228

\$1,440

\$288

\$1,728

\$25,228

\$1,440

<u>NA</u>

NA

NA

\$1,440

<u>NA</u>

NA

NA

\$1,440

\$1,728

\$25,228

\$288

Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Amtrak Route: Origin/Destination: Electric City Express

Schenectady-New York City

160

Length in Miles: Length in Hours:

3.03

4

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per dar basis (diress notes o	151-Odd	170	170	150-Even	NA	NA
OPERATING COSTS	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	4	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$288	\$576	\$288	\$288	NA	NA
Annual spare parts cost per yr	<u>\$1,175</u>	<u>\$1,300</u>	<u>\$1,175</u>	<u>\$1,175</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,463	\$1,876	\$1,463	\$1,463	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	*-	•••	•-	*-	• •	• -
- Pump out Cost	\$0.15	\$0.39	\$0.28	\$0.22	NA	NA
- Pump out minutes	0.25	0.65	0.47	0.36	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	NA
- Waste Disposal	\$1.00	\$2.67	\$1.93	\$1.48	NA:	NA NA
Subtotal- End of Day/Trip Srvc	\$7.15	\$15.06	\$8.21	\$7.70	NA	NA NA
Train Delay:	<b>V</b> 7.10	<b>\$10.00</b>	Ψ0.21	Ψ1.10	***	147
- Pump out volume reg'd	0	0	0	0	NA ·	NA
- # of stops req'd	ō	0	. 0	ō	NA NA	NA.
- Pump out minutes	0.0	0.0	0.0	0,0	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	NA.
- Total Time Delay(mins/car)	0	0	0	0	NA	NA NA
Average Cost Per Delay	\$0	\$0	- \$0	\$0	NA NA	NA NA
Subtotal- Oprtng Trip Related	\$7	\$15	\$8	\$8	NA NA	NA NA
Cabicial Opining Trip Tichards	=					
Total # Cars in fleet	6	21	3	14	NA.	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,752	6,132	876	4,088	NA	NA
Days per Trip (min. of 1)	. 1	1	<u>1</u>	1	1	1
, , , , ,		_	-	_	_	_
Annual Opring Trip Related per Car	\$2,087	. \$4,398	\$2,397	\$2,248	NA	NA
Annual Non-Trip Related per Car	\$1,463	\$1,876	\$1,463	\$1,463	NA	NA
Annual Opring Trip Related per Car Type	\$12,523	\$92,349	\$7,192	\$31,478	. NA	NA
Annual Non-Trip Related per Car Type	<u>\$8,778</u>	\$39,396	\$4,389	\$20,482	NA	<u>NA</u>
, , , , , , , , , , , , , , , , , , ,				<del></del>	<u>—</u>	
Total OPRTNG COST per Car	\$3,550	\$6,274	\$3,860	\$3,711	NA	NA
Total CAPITAL COST per Car	\$25,228	\$28,016	\$25,228	\$25,228	NA	NA
Total OPRTNG COST for all cars	\$21,301	\$131,745	\$11,581	\$51,960	NA	NA
Total CAPITAL COST for all cars	\$151,368	\$588,336	\$75,684	\$353,192	NA NA	NA

Route Number:

#250

Electric City Express

Origin/Destination: Length in Miles:

Schenectady-New York City 160

Length in Hours:

3.03

Expected Trips per Day:

Manufacturer: Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Unfavorable

* All data on per car basis (unless noted of	otherwise)					
,	151-Odd	170	170	150-Even	NA	NA
OPERATIVE COSTS	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	<u>N</u> A	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$576	\$288	\$288	NA	NA
Frequency per Year	4	4	4	4	<u>4</u>	4
Servicing Cost/Year	\$1,152	\$2,304	\$1,152	\$1,152	. NA	NA
Annual spare parts cost per yr	\$163	\$32 <u>5</u>	\$163	\$1 <u>63</u>	NA.	NA NA
Total- Opring Non-Trip Related	\$1,315	\$2,629	\$1,315	\$1,315	NA	NA
rota- opining from the fromed	- 41,010	\$2,025	<b>V1,010</b>	41,010	712,	11/1
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.06	\$0.16	\$0.12	\$0.09	NA	NA
- Pump out minutes	0.10	0.27	0.20	0.15	NA .	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	· NA
- Waste Disposal	\$0.5 <u>4</u>	\$1.4 <u>4</u>	\$1.0 <u>4</u>	\$0.80	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.60	\$13.60	\$7.16	\$6.89	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops reg'd	0	. 0	. 0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Total Time Delay(mins/car)			0	0	NA NA	NA
Average Cost Per Delay	\$0	- \$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$7	\$14	\$7	\$7	NA	NA
, - ,			<del></del>			
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,752	6,132	876	4,088	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Appual Ondra Tria Polated nor Car	\$1,927	\$3,971	\$2,089	\$2,012	NA	NA
Annual Opring Trip Related per Car Annual Non-Trip Related per Car	•			\$1,315	NA NA	NA NA
Annua Non-Trip Related per Car	\$1,315	\$2,629	\$1,315	\$1,010	NA.	IVA
Annual Oprtng Trip Related per Car Type	\$11,563	\$83,395	\$6,268	\$28,162	NA	NA
Annual Non-Trip Related per Car Type	<u>\$7.887</u>	<u>\$55,209</u>	<u>\$3,944</u>	<u>\$18,403</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,242	\$6.600	\$3,404	\$3,326	NA	NA
Total CAPITAL COST per Car	\$3,538	\$7,076	\$3,538	\$3,538	NA NA	NA NA
. Star of the Goot per oal	ψυ,υυσ	Ψ1,070	ψυ,550	ΨΟ,ΟΟΟ	1464	. 130
Total OPRTNG COST for all cars	\$19,450	\$138,604	\$10,212	\$46,565	NA	NA
Total CAPITAL COST for all cars	\$21,228	\$148,596	\$10,614	\$49,532	NA	NA

Route Number:

#250

Amtrak Route: Electric City Express Route Number: Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Microphor Manufacturer: Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 170 170 150-Even NA NA 151-Odd <u>NA</u> <u>NA</u> Turbo Power Club Turbo Coach Turbo Cafe Turbo Power Coac Quantity of cars 3 1 1 NA NA 72 2 Capacity (# people) - seated Toilets per car 27 52 40 NA NA NA NA 1 1 27.0 36.0 52.0 40.0 NA NA Average persons/toilet on train Car Waste Data (per car) Black Water: NA Human Waste/day (gals) 12.12 32.33 23.35 17.96 NA 8.00 8.00 8.00 8.00 8.00 # Flushes/Person-day 8.00 1.25 1.25 1.25 1.25 1.25 Flush efficiency adjustment 1.25 10 10 10 Adj. # Flushes/Person-day 10 10 10 0.172 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 46.4 123.8 89.4 68.8 NA NA 78.9 57.0 43.8 NA NA Capacity Req'd/day (gals) 29.6 Adj. Capacity Req'd w/ Buffer 37.0 98.6 71.2 54.8 NA NΑ Tank Capacity per Car (gals) 300 300 300 300 300 300 NA NA Continuous Service Hours Supported 195 73 101 131 NA As a percentage of 72 hours 271% 101% 140% 183% NA 12.12 Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 NA NA Service Days Supported 16.1 6.0 8.3 10.8 NA 535.65% 200.87% 278.13% 361.57% NA As a percentage of 3 days Consecutive Trips before pumpout 64.0 24.0 33.0 43.0 NA NA CAPITAL COSTS Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$5,000 \$5,000 \$5,000 \$10,000 <u>NA</u> <u>NA</u> - Total Equip Cost \$15,000 \$20,000 \$15,000 \$15,000 NA NA Equipment Installation Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576 Toilet Cost per Car \$288 \$576 \$288 \$288 <u>NA</u> NA - Total Installation Cost \$864 \$1,152 \$864 \$864 NA NA

#250

\$21,152

\$15,864

\$15,864

NA

NΑ

\$15,864

**Total Capital Cost** 

Electric City Express

Route Number:

#250

Origin/Destination:

Length in Miles:

Schenectady-New York City, 160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Equipment:

Microphor Gravity

Scenario:

Unfavorable

* All data on per car basis (unless noted o	therwise)	,				
n	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	<u>4</u>	4	<u>4</u>	<u>4</u>	4	<u>4</u>
Servicing Cost/Year	\$288	\$576	\$288	\$288	NA	NA
Annual spare parts cost per yr	<u>\$750</u>	<u>\$1,000</u>	<u>\$750</u>	<u>\$750</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,038	\$1,576	\$1,038	\$1,038	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	. \$6	NA	NA
- Light Repair	\$0	\$0	\$0	. \$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.30	\$0.79	\$0.57	\$0.44	NA ·	NA
- Pump out minutes	0.49	1.31	0.95	0.73	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$2.01</u>	<u>\$5.36</u>	<u>\$3.87</u>	<u>\$2.98</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$8.31	\$18.15	\$10.44	\$9.42	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	, NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$8	\$18	\$10	\$9	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,752	6,132	876	4,088	NA	NA .
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$2,426	\$5,300	\$3,049	\$2,750	NA	NA
Annual Non-Trip Related per Car	\$1,038	\$1,576°		\$1,038	NA	NA
Annual Opring Trip Related per Car Type	\$14,554	\$111,305	\$9,148	\$38,499	NA	NA
Annual Non-Trip Related per Car Type	\$6,228	<u>\$33,096</u>	<u>\$3.114</u>	<u>\$14,532</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,464	\$6,876	\$4,087	\$3,788	NA	NA
Total CAPITAL COST per Car	\$15,864	\$21,152	\$15,864	\$15,864	NA	NA NA
Total OPRTNG COST for all cars	\$20,782	\$144,401	\$12,262	\$53,031	NA	NA NA
Total CAPITAL COST for all cars	\$95,184	\$444,192	\$47,592	\$222,096	NA	NA

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted c	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	. 1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	12.7	33.8	24.4	18.8	NA	. NA
Capacity Req'd/day (gals)	12.5	33.4	24.1	18.6	NA	NA
Adj. Capacity Req'd w/ Buffer	15.7	41.8	30.2	23.2	· NA	··· NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	306 426%	115 160%	159 221%	207 287%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	25,3	9.5	13.1	17.1	NA	NA
As a percentage of 3 days	842.82%	316.06%	437.62%	568.91%	NA	NA
Consecutive Trips before pumpout	101.0	37.0	52.0	68.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<b>\$2,900</b>	<u>\$5,800</u>	<u>\$2,900</u>	<u>\$2,900</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,900	\$17,800	\$14,900	\$14,900	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	NA
- Total Installation Cost	\$1,728	\$2,016	\$1,728	\$1,728	ŅA	NA
Total Capital Cost	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles:

160

Length in Hours:

3.03

Expected Trips per Day: Manufacturer:

Equipment:

Evac Ultimate

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	151-Odd	170	170	150-Even	NA	NA
OPERATING COSTS	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	4	<u>4</u>	4	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$288	\$57 <b>6</b>	\$288	_	NA .	NA
Annual spare parts cost per yr	<u>\$745</u>	<u>\$890</u>	<u>\$745</u>	<u>\$745</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,033	\$1,466	\$1,033	\$1,033	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	*					
- Pump out Cost	\$0.13	\$0.33	\$0.24	\$0.19	NA	. NA
- Pump out minutes	0.21	0.56	0.40	0.31	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$0.85</u>	<u>\$2.27</u>	\$1.64	\$1.2 <u>6</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.98	\$14.61	\$7.88	\$7.45	NA	NA
Train Delay:		1				
- Pump out volume req'd	. 0	0	0	0	NA	NA
- # of stops req'd	0	0	0	-0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal-Oprtng Trip Related	\$7	\$15	\$8	\$7	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,752	6,132	876	4,088	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$2,037	\$4,265	\$2,302	\$2,175	NA	NA
Annual Non-Trip Related per Car	\$1,033	\$1,466	\$1,033	\$1,033	NA	NA
Annual Opring Trip Related per Car Type	\$12,224	\$89,566	\$6,905	\$30,447	NA	NA
Annual Non-Trip Related per Car Type	<u>\$6,198</u>	<u>\$30,786</u>	<u>\$3,099</u>	<u>\$14,462</u>	<u>NA</u>	. <u>NA</u>
Total OPRTNG COST per Car	\$3,070	\$5,731	\$3,335	\$3,208	NA	NA
Total CAPITAL COST per Car	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$18,422 \$99,768	\$120,352 \$416,136	\$10,004 \$49,884		NA NA	NA NA

#250

Route Number:

Amtrak Route: Origin/Destination:

Length in Miles:

Electric City Express

Schenectady-New York City

160

160

Length in Hours: Expected Trips per Day: 3.03

Manufacturer:

Railtech WTS 8300

Equipment:

11-4-----

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	therwise) ·					
	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
					<del></del>	
Quantity of cars	1	3	1	1	NA NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	, NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)					.*	
Black Water:		•				•
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	ູ 10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	71.1	189.5	136.8	105.3	NA	NA
Capacity Req'd/day (gals)	42.0	112.0	80.9	62.2	NA	NA
Adj. Capacity Req'd w/ Buffer	52.5	140.0	101.1	77.8	NA	, NA
Tank Capacity per Car (gals)	50	100	50	50	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	23 32%	17 24%	12 16%	15 21%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	1.9	1.4	1.0	1.3	NA	NA
As a percentage of 3 days	62.86%	47.14%	32.64%	42.43%	NA	NA
Consecutive Trips before pumpout	7.0	5.0	3.0	5.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$4,000	\$8,000	\$4,000	\$4,000	NA	NA
Toilet Cost per Car	<u>\$3,000</u>	<u>\$6,000</u>	\$3,000	<u>\$3,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$7,000	\$14,000	\$7,000	\$7,000	NA	NA
Equipment Installation						
Collection System per Car	\$288	\$576	\$288	\$288	NA	NA
Toilet Cost per Car-	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	\$288	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$1,152	\$576	\$576	NA	NA
Total Capital Cost	\$7,576	\$15,152	\$7,576	\$7,576	NA	NA

Route Number:

#250

Electric City Express

Schenectady-New York City

160

3.03

Route Number:

#250

Length in Miles:

Origin/Destination:

Length in Hours:

Expected Trips per Day:

Manufacturer: Equipment:

Scenario:

WTS 8300 Unfavorable

Railtech

\* All data on per car basis (unless noted otherwise) 151-Odd

	151-Odd Turbo Power Club	170 Turbo Coach	170 Turbo Cafe	150-Even	NA NA	NA
OPERATING COSTS	Turbo Power Club	Turbo Coach	Turbo Cale	Turbo Power Coac	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:	<b>#70</b>	6444	470	<b>A70</b>	N/A	
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	4	4	4	4	4	<u>4</u>
Servicing Cost/Year	\$288	\$576	\$288	\$288	NA	NA
Annual spare parts cost per yr	<u>\$350</u>	<u>\$700</u>	<u>\$350</u>	<u>\$350</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$638	\$1,276	\$638	\$638	NA NA	NA NA
Trip Related Costs:	•				•	e e
Toilet maintenance enroute End of Day/Trip Servicing			•			
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	••	<b>4</b> 5	••	•	••	4,5
- Pump out Cost	\$0.42.	\$1.12	\$0.81	\$0.62	NA	NA
- Pump out minutes	0.70	· 1.87	1.35	1.04	NA NA	NA NA
- Connect/Disc. minutes	0.70	0.0	0.0	0.0	NA NA	NA NA
- Waste Disposal	<u>\$2.86</u>	<u>\$7.62</u>	\$5.50	<u>\$4.23</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$9.28	\$20.74	\$12.31	\$10.85	NA	NĄ
Train Delay:		_	_		***	
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	.0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	. 0	0	0	0	· NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$9	\$21	\$12	\$11	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,752	6,132	876	4,088	NA	ŇΑ
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$2,709	\$6,055	\$3,594	\$3,169	NA	NA
Annual Non-Trip Related per Car	\$638	\$1,276	\$638	\$638	NA	NA
Annual Oprtng Trip Related per Car Type	\$16,252	\$127,158	\$10,783	\$44,370	NA	NA
Annual Non-Trip Related per Car Type	\$3,828	\$26,796	\$1,914	\$8,932	<u>NA</u>	NA
	<u> +01</u> 260	<u> *==://2</u>	<del>2.1014</del>	<u> </u>	1. V. J	
Total OPRTNG COST per Car	\$3,347	\$7,331	\$4,232	\$3,807	NA	NA
Total CAPITAL COST per Car	\$7,576	\$15,152	\$7,576	\$7,576	NA	, NA
Total OPRTNG COST for all cars	\$20,080	\$153,954	\$12,697	\$53,302	NA	NA
Total CAPITAL COST for all cars	\$45,456	\$318,192	\$22,728	\$106,064	NA	NA
	\$ 10,190	+5.0,.02	, , , , , , , , , , , , , , , , , , ,	,		aranga kanggaran

## APPENDIX D

#### COST MODEL FOR AMTRAK RETENTION TOILET SYSTEMS— COSTS BY CAR TYPE

D1 Monogram Modified Vacuum

Car Type:

Coach-HEP-HLV

Toilet Type: Modified Vacuum

72

Manufacturer:

Number of Passengers: Number of Toilets:

4

Total Tank Capacity (gals):

235.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$33,592 \$31,000 \$2,592		·
Maintenance Cost: - Labor: - Spare Parts:	\$1,794 \$864 \$930		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	32.33	64.66	96.98
Flush Fluid Generated:	34.93	69.85	104.78
Capacity Adjustment:	16.81	33.63	50.44
Total Capacity Required per Day:	84.07	168.14	252.21
Pumpout Labor Cost:	\$0.3	\$0.7	\$1.0
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$4.2
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:	\$26.4	\$26.8	\$29.2
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$146	\$195	\$219
Maximum Continuous Hours of Service:	67.1	67.1	67.1
Total Operating Cost per Service Hour:	\$1.73	\$1.04	\$0.84
- Trip Related:	\$1.15	\$0.61	\$0.45
- Non-Trip Related:	\$0.59	\$0.44	\$0.39
Total per-Car Operating Cost per Year:	\$5,319	\$4,271	\$3,881
Total Fleet Operating Cost per Year:	\$111,698	\$89,693	\$81,507
Total Fleet Capital Cost:	\$705,432		

Favorable		,	Unfavorable		
\$33,592 \$31,000 \$2,592			\$33,592 \$31,000 \$2,592	· , .	
\$886 \$576 \$310			\$2,702 \$1,152 \$1,550	•	•
24 1	48 1	72 1	24	48 1	72 1
32.33	64.66	96.98	32.33	64.66	96.98
27.22	54.43	81.65	45.36	90.72	136.08
14.89	29.77	44.66	19.42	38.84	58.27
74.43	148.86	223.29	97.11	194.22	291.33
\$0.3	\$0.5	\$0.8	\$0.5	\$0.9	\$1.4
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$26.4	\$26.6	\$26.9	\$26,6	\$27.0	\$29.6
219 110	219 73	219 55	. 292 146	292 97	292 73
\$111	\$148	\$166	\$193	\$257	\$289
75.8	75.8	75.8	58.1	58.1	58.1
\$1.48	\$0.85	\$0.64	\$1.93	\$1.20	\$0.98
\$1.14	\$0.60	\$0.42	\$1.16	\$0.62	\$0.47
\$0.34	\$0.25	\$0.22	\$0.77	\$0.58	\$0.51
\$3,885	\$2,979	\$2,526	\$6,772	\$5,588	· <b>\$5,149</b>
\$81,576	\$62,555	\$53,045	\$142,205	\$117,344	\$108,133
\$705,432			\$705,432		l.

Car Type:

Capital Cost

Lounge-HEP-HLV

Expected

\$28,016

Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 86
Number of Toilets: 2
Total Tank Capacity (gals): 235.0

Scenario:

Coolidio.	-Apootou	
	1	

- Equipment: - Installation:	\$26,000 \$2,016		
Maintenance Cost:	\$1,212		
- Labor:	\$432 \$780		
- Spare Parts:	\$780		
Hours per_Trip:	24	48	72
Trips per Day:	1	1	1
Waste Generation Data			
Waste Generated:	38.61	77.23	115.84
Flush Fluid Generated:	41.72	83.44	125.16
Capacity Adjustment:	20.08	40.17	60.25
Total Capacity Required per Day:	100.42	200.83	301.25
Pumpout Labor Cost:	\$0.4	\$0.8	\$1.3
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.5	\$14.9	\$17.5
Days Operated per Year:	255	255	255
Cléan-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$174	\$233	\$262
Maximum Continuous Hours of Service:	56.2	56.2	56.2
Total Operating Cost per Service Hour:	\$1.06	\$0.66	\$0.56
- Trip Related:	\$0.66	\$0.37	\$0.30
- Non-Trip Related:	\$0.40	\$0.30	\$0.26
Total per-Car Operating Cost per Year:	\$3,241	\$2,717	\$2,588
Total Fleet Operating Cost per Year:	\$19,446	\$16,299	\$15,530
Total Fleet Capital Cost:	\$168,096	<u>-</u> -	

					•
		Unfavorable			Favorable
		\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016
		\$1,876 \$576 \$1,300			\$548 \$288 \$260
<b>72</b> 1	<b>48</b> 1	24 1	72 1	48 1	24 1
115.84	77.23	38.61	115.84	77.23	38.61
162.54	108.36	54.18	97.52	65.02	32.51
69.60	46.40	23.20	53.34	35.56	17.78
347.98	231.99	115.99	266.71	177.81	88.90
\$1.6	\$1.1	\$0.5	\$1.0	\$0.7	\$0.3
\$4.2	\$2.1	\$2.1	\$4.2	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$17.8	\$15.2	\$14.6	\$17.2	\$14.8	\$14.4
292 73	292 · 97	292 146	219 55	219 73	219 110
\$345	\$307	\$230	\$199	\$177	\$132
48.6	48.6	48.6	63.4	63.4	63.4
\$0.67	\$0.78	\$1.21	\$0.43	\$0.51	\$0.86
\$0.31	\$0.38	\$0.68	\$0.29	\$0.36	\$0.65
\$0.36	\$0.40	\$0.54	\$0.14	\$0.16	\$0.21
\$3,523	\$3,661	\$4,244	\$1,687	\$1,801	\$2,260
\$21,136	\$21,966	\$25,464	\$10,122	\$10,808	\$13,560
		\$168,096			\$168,096

Car Type: Trans Dorm Coach
Toilet Type: Modified Vacuum

Modified Vacuum Manufacturer:

Number of Passengers: 40
Number of Toilets: 4
Total Tank Capacity (gals): 235.0

Scenario: Expected

Capital Cost	\$33,592		
- Equipment:	\$31,000		
- Installation:	\$2,592		
Maintenance Cost:	\$1,794		
- Labor:	\$864		
- Spare Parts:	\$930		
Hours per Trip:	24	48	72
Trips per Day:	1	1	1
Waste Generation Data			
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	19.40	38.81	58.21
Capacity Adjustment:	9.34	18.68	28.02
Total Capacity Required per Day:	46.71	93.41	140.12
Pumpout Labor Cost:	\$0,2	\$0.4	\$0.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:	\$26.3	\$26.5	\$26.7
Total Fullipourcleaning Cost per Day.	\$20.3	<b>φ20.</b> 3	φ∠0.7
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$81	\$108	\$122
Maximum Continuous Hours of Service:	్ర 120.8	120.8	120.8
Total Operating Cost per Service Hour:	\$1.71	\$1.02	\$0.79
- Trip Related:	\$1.12	\$0.58	\$0.40
- Non-Trip Related:	\$0.59	\$0.44	\$0.39
Total par Car Operation Cast par Vers	<b>\$5.00</b> 4	<b>64 450</b>	<b>#</b> 0.000
Total per-Car Operating Cost per Year:	\$5,234	\$4,158	\$3,620
Total Fleet Operating Cost per Yesr:	\$188,432	\$149,691	\$130,321
Total Fleet Capital Cost:	\$1,209,312		

Favorable			Unfavorable		
\$33,592 \$31,000 \$2,592			\$33,592 \$31,000 \$2,592	· , ·	•
\$886 \$576 \$310			\$2,702 \$1,152 \$1,550		
24 1	<b>48</b> 1	72 1	24 1	<b>48</b> 1	. 72 . 1
17.96 15.12	35.92 30.24	53.88 45.36	17.96 25.20	35.92 50.40	53.88 75.60
. 8.27	16.54	24.81	10.79	21.58	32.37
41.35	82.70	124.05	53.95	107.90	161.85
\$0.2	\$0.3	\$0.5	\$0.3	\$0.5	\$0.8
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$26.3	\$26.4	\$26.6	\$26.4	\$26.6	\$26.9
219 110	219 73	219 55	292 . 146	292 97	292 73
\$62	\$82	\$92	\$107	\$143	\$161
136.4	136.4	136.4	104.5	104.5	104.5
\$1.45	\$0.83	\$0.62	\$1.90	\$1.16	\$0.92
\$1.12	\$0.57	\$0.39	\$1.13	\$0.58	\$0.40
\$0.34	\$0.25	\$0.22	\$0.77	\$0.58	\$0.51
\$3,822	\$2,895	\$2,432	\$6,657	\$5,434	\$4,823
\$137,595	\$104,237	\$87,558	\$239,635	\$195,634	\$173,634
\$1,209,312		,	\$1,209,312		

Car Type:

Sleeper Super

Toilet Type:

**Modified Vacuum** 

44

12

Manufacturer:

**Number of Passengers: Number of Toilets:** Total Tank Capacity (gals): 235.0

> Scenario: Evnected

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$55,896 \$51,000 \$4,896		
- mstandion.	ψ+,090		
Maintenance Cost: - Labor:	\$4,122 \$2,592		
- Spare Parts:	\$1,530		
Hours per Trip: Trips per Day:	· 24	48 1	72 1
Waste Generation Data			
Waste Generated:	19.76	39.51	59.27
Flush Fluid Generated:	21.34	42.69	64.03
Capacity Adjustment:	10.28	20.55	30.83
Total Capacity Required per Day:	51.38	102.75	154.13
Pumpout Labor Cost:	\$0.2	\$0.4	\$0.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2,1
Cleaning Labor Cost:	\$72.0	\$72.0	\$72.0
Total Pumpout/Cleaning Cost per Day:	\$74.3	\$74.5	\$74.7
Days Operated per Year:	<sup>و</sup> 255	255	255
Clean-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$89	\$119	\$134
Maximum Continuous Hours of Service:	109.8	109.8	109.8
Total Operating Cost per Service Hour:	\$4.47	\$2.59	\$1.96
- Trip Related:	\$3.13	\$1.58	\$1.07
- Non-Trip Related:	\$1.34	\$1.01	\$0.90
Total per-Car Operating Cost per Year:	\$13,705	\$10,588	\$9,030
Total Fleet Operating Cost per Year:	\$931,927	\$719,999	\$614,035
Total Fleet Capital Cost:	\$3,800,928		

Favorable	<u>.</u>		Unfavorable		
\$55,896			\$55,896	,	· · · · · · · · · · · · · · · · · · ·
\$51,000 \$4,896			\$51,000 \$4,896		٠.
\$2,238 \$1,728 \$510			\$6,006 \$3,456 \$2,550		
2 <b>4</b> 1	48 1	72 1	24	<b>48</b> 1	72 1
19.76	39.51	59.27	19.76	39.51	59.27
16.63	33.26	49.90	27.72	55.44	83.16
9.10	18,19	27.29	11.87	23.74	35.61
45.49	90.97	136.46	59.35	118.69	178.04
\$0.2	\$0.3	\$0.5	\$0.3	\$0.6	\$0.8
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$72.0	\$72.0	\$72.0	\$72.0	\$72.0	\$72.0
\$74.3	\$74.4	\$74.6	\$74.4	\$74.7	\$74.9
219 110	219 73	219 55	292 146	292 97	292 73
\$68	\$90	\$1.02	\$118	\$157	\$177
124.0	124.0	124.0	95.0	95.0	95.0
\$3.97	\$2.22	\$1.63	\$4.85	\$2.87	\$2.22
\$3.12	\$1.58	\$1.06	\$3.13	\$1.59	\$1.07
\$0.85	\$0.64	\$0.57	\$1.71	\$1.29	\$1.14
\$10,438	\$7,762	\$6,424	\$16,983	\$13,429	\$11,653
\$709,777	\$527,809	\$436,825	\$1,154,838	\$913,204	\$792,388
\$3,800,928			\$3,800,928		

Car Type: Bag Coach Super Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 78
Number of Toilets: 5
Total Tank Capacity (gals): 235.0

Scenario: Expected

380 500 880 085 080 005 24 48 1 1 5.02 70.04 7.84 75.68 8.21 36.43 1.07 182.15	105.07 113.51
880 085 080 005 24 48 1 1 5.02 70.04 7.84 75.68 8.21 36.43	1 105.07 113.51
085 080 005 24 48 1 1 5.02 70.04 7.84 75.68 8.21 36.43	1 105.07 113.51
080 005 24 48 1 1 5.02 70.04 7.84 75.68 8.21 36.43	1 105.07 113.51
005 24 48 1 1 5.02 70.04 7.84 75.68 8.21 36.43	1 105.07 113.51
24 48 1 1 5.02 70.04 7.84 75.68 8.21 36.43	1 105.07 113.51
5.02 70.04 7.84 75.68 8.21 36.43	1 105.07 113.51
5.02 70.04 7.84 75.68 8.21 36.43	113.51
7.84 75.68 8.21 36.43	113.51
7.84 75.68 8.21 36.43	113.51
8.21 36.43	
1.07 182.15	54.64
	273.22
\$0.4 \$0.8	\$1.1
\$2.1 \$2.1	\$4.2
30.0 \$30.0	\$30.0
32.5 \$32.9	\$35.3
255 255	255
128 85	64
\$158        \$211	\$237
61.9 61.9	61.9
2.08 \$1.25	\$1.00
1.40 \$0.74	\$0.54
0.68 \$0.51	\$0.45
,392 \$5,094	\$4,579
.833 \$244,525	\$219,810
•	
	61.9 61.9 2.08 \$1.25 1.40 \$0.74 0.68 \$0.51

Favorable			Unfavorable		
\$36,380 \$33,500 \$2,880			\$36,380 \$33,500 \$2,880	,	
\$1,055 \$720 \$335			\$3,115 \$1,440 \$1,675		
24 1	48 1	72 1	24 1	<b>48</b> 1	72
35.02	70.04	105.07	35.02	70.04	105.07
29.48	58.97	88.45	49.14	98.28	147.42
16.13	32.25	48.38	21.04	42.08	63.12
80.63	161.27	241.90	105.20	210.41	315.61
\$0.3	\$0.6	\$0.9	\$0.5	\$1.0	\$1.5
\$2.1	\$2.1	\$4.2	\$2.1	\$2.1	\$4.2
\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
\$32.4	\$32.7	\$35.1	\$32.6	\$33.1	\$35.7
219 110	219 73	219 55	292 146	292 97	292 73
\$120	\$160	\$180	\$209	\$279	\$313
69.9	69.9	69.9	53.6	53.6	53.6
\$1.80	\$1.03	\$0.80	\$2.31	\$1.42	\$1.15
\$1.40	\$0.73	\$0.53	\$1.42	\$0.75	\$0.56
. \$0.40	\$0.30	\$0.27	\$0.89	\$0.67	\$0.59
\$4,722	\$3,601	\$3,156	\$8,082	\$6,614	\$6,033
\$226,671	\$172,870	\$151,488	\$387,947	\$317,452	\$289,562
\$1,746,240	·		\$1,746,240		

Car Type: Coach Super Toilet Type:

**Modified Vacuum** 

Manufacturer:

Number of Passengers: 75 **Number of Toilets:** Total Tank Capacity (gals): 235.0

> Scenario: **Expected**

·			
Capital Cost	\$39,168		
- Equipment:	\$36,000		
- Installation:	\$3,168		
Maintenance Cost:	\$2,376		
- Labor:	\$1,296		
- Spare Parts:	\$1,080		
Hours per Trip:	24	48	72
Trips per Day:	. 1	1	1
Waste Generation Data			
Waste Generated;	33.68	67.35	101.03
Flush Fluid Generated:	36.38	72.77	109.15
Capacity Adjustment:	17.51	35.03	52.54
Total Capacity Required per Day:	87.57	175.14	262.72
Pumpout Labor Cost:	\$0.4	\$0.7	\$1.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$4.2
Cleaning Labor Cost:	\$36.0	\$36.0	\$36.0
Total Pumpout/Cleaning Cost per Day:	\$38.5	\$38.8	\$41.3
Days Operated per Year:	255	255	255
Cléan-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$152	\$203	\$228
		·	·
Maximum Continuous Hours of Service:	64.4	64.4	64.4
Total Operating Cost per Service Hour:	\$2.43	\$1.44	\$1.14
- Trip Related:	\$1.65	\$0.86	\$0.62
- Non-Trip Related:	<b>\$0.77</b>	\$0.58	\$0.52
Total per-Car Operating Cost per Year:	\$7,442	\$5,886	\$5,242
Total Fleet Operating Cost per Year:	\$677,213	\$535,597	\$476,996
Total Fleet Capital Cost:	\$3,564,288		_

Favorable			Unfavorable	•	
\$39,168 \$36,000 \$3,168			\$39,168 \$36,000 \$3,168		
\$1,224 \$864 \$360			\$3,528 \$1,728 \$1,800		
24 1	48 1	72 1	24 1	48 1	72 1
33.68	67.35	101.03	33.68	67.35	101.03
28.35	56.70	85.05	47.25	94.50	141.75
15.51	31.01	46.52	20.23	40.46	60.69
77.53	155.06	232.59	101.16	202.31	303.47
\$0.3	\$0.6	\$0.9	\$0.5	\$0.9	\$1.4
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$36.0	\$36.0	\$36.0	\$36.0	\$36.0	\$36.0
\$38.4	\$38.7	\$39.0	\$38.6	\$39.0	\$41.6
219 110	219 73	219 55	292 146	292 97	292 73
\$115	\$154	\$173	\$201	\$268	\$301
72.7	72.7	72.7	55.8	55.8	55.8
\$2.11	\$1.20	\$0.90	\$2.67	\$1.63	\$1.31
\$1.64	\$0.85	\$0.58	\$1.66	\$0.87	\$0.64
\$0.47	\$0.35	\$0.31	\$1.01	\$0.76	\$0.67
\$5,542	\$4,201	\$3,530	\$9,360	\$7,596	\$6,867
\$504,363	\$382,258	\$321,205	\$851,800	\$691,253	\$624 <b>,</b> 930
\$3,564,288			\$3,564,288		

Car Type:

D-8

Horizon

Toilet Type:

**Modified Vacuum** 

Manufacturer:

Number of Passengers: Number of Toilets:

82 2

Total Tank Capacity (gals):

235.0

	Scenario:	Expected
•		

Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		. ,
Maintenance Cost: - Labor: - Spare Parts:	້\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	18.41	36.82	73.64
Flush Fluid Generated:	19.89	39.78	79.56
Capacity Adjustment:	9.57	19.15	38.30
Total Capacity Required per Day:	47.87	95.75	191.49
Pumpout Labor Cost:	\$0.2	\$0.4	\$0.8
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.3	\$14.5	\$14.9
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$166	\$166	\$222
Maximum Continuous Hours of Service:	58.9	58.9	58.9
Total Operating Cost per Service Hour:	\$1.64	\$1.05	\$0.66
- Trip Related:	\$1.25	\$0.66	\$0.36
- Non-Trip Related:	\$0.40	\$0.40	\$0.30
Total per-Car Operating Cost per Year:	\$5,032	\$3,230	\$2,702
Total Fleet Operating Cost per Year:	\$518,267	\$332,735	\$278,347
Total Fleet Capital Cost:	\$2,885,648		

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Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
12	24 1	48	12 1	24 1	48 1
18.41	36.82	73.64	18.41	36.82	73.64
15.50	31.00	61.99	25.83	51.66	103.32
8.48	16.95	33.91	11.06	22.12	44.24
42.38	84.77	169.54	55.30	110.60	221.20
\$0.2	\$0.3	\$0.6	\$0.3	\$0.5	\$1.0
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.3	\$14.4	\$14.7	\$14.4	\$14.6	\$15.1
219 219	219 110	219 73	292 292	292 146	292 97
\$126	\$126	\$168	\$220	\$220	\$293
66.5	66.5	66.5	51.0	51.0	51.0
\$1.44	\$0.86	\$0.51	\$1.79	\$1.21	\$0.78
\$1.24	\$0.65	\$0.35	\$1.26	\$0.67	\$0.38
\$0.21	\$0.21	\$0.16	\$0.54	\$0.54	\$0.40
\$3,796	\$2,252	\$1,791	\$6,288	\$4,230	\$3,642
\$390,996	\$231,969	\$184,459	\$647,687	\$435,651	\$375,102
\$2,885,648	•		\$2,885,648		•

Car Type:	Coach			
Toilet Type:	Modified Va	cuum	M	lanufacturer:
Number of Passeng	ers:	48		
Number of Toilets:		2		
Total Tank Capacity	(gals):	235.0		
Scenario	<b>):</b> ,	Expected		
Capital Cost - Equipment: - Installation:		\$28,016 \$26,000 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:		\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:		12 1	24 1	48
Waste Generation Data				
Waste Generated:		10.78	21.55	43.10
Flush Fluid Generated:		11.64	23.28	46.57
Capacity Adjustment:		5.60	11.21	22.42
Total Capacity Required	l per Day:	28.02	56.05	112.09
Pumpout Labor Cost:		, \$0.1	\$0.2	\$0.5
Connect/Disconnect Lat	oor Cost:	\$2,1	\$2.1	\$2.1
Cleaning Labor Cost:		\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning	Cost per Day:	\$14.2	\$14.3	\$14.6

Pumpout Labor Cost:	, \$0.1	\$0.2	\$0.5
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.6
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$97	\$97	\$130
Maximum Continuous Hours of Service:	100.6	100.6	100.6

- Non-Trip Related:

Total Operating Cost per Service Hour:

\$4,942

\$1.61

\$1.22

\$0.40

\$0.63 \$0.40 \$0.63 \$0.34

Total per-Car Operating Cost per Year:

\$3,140

\$1.02

\$0.30 \$2,582

Total Fleet Operating Cost per Year:

\$385,450

\$244,951

\$201,423

**Total Fleet Capital Cost:** 

- Trip Related:

\$2,185,248

Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
12 1	24 1	48	12	24 1	48 1
10.78	21.55	43.10	10.78	21.55	43.10
9.07	18.14	36.29	15.12	30.24	60.48
4.96	9.92	19.85	6.47	12.95	25.90
24.81	49.62	99.24	32.37	64.74	129.48
\$0.1	\$0.2	\$0.4	\$0.2	\$0.3	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.3	\$14.5	\$14.3	\$14.4	\$14.7
219 219	219 110	219 73	292 292	292 146	292 97
\$74	\$74	\$99	\$129	\$129	\$171
. 113.7	113.7	113.7	87.1	87.1	87.1
\$1.42	\$0.83	\$0.49	\$1.76	\$1.17	\$0.74
\$1.21	\$0.62	\$0.33	\$1.70	\$0.64	\$0.74
\$0.21	\$0.21	\$0.16	\$0.54	\$0.54	\$0.40
\$3,730	\$2,186	\$1,702	\$6,166	\$4,107	\$3,479
\$290,914	\$170,486	\$132,781	\$480,940	\$320,369	\$271,336
\$2,185,248			\$2,185,248	•	

Car Type: Coach (HDCP)
Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 44
Number of Toilets: 3
Total Tank Capacity (gals): 235.0

Scenario: Expected

Capital Cost - Equipment: - Installation: \$28,500	Scenario.	Expected		
- Labor: - Spare Parts: - Spare Part	- Equipment:	\$28,500		
Trips per Day:       1       1       1         Waste Generation Data       9.88       19.76       39.51         Flush Fluid Generated:       10.67       21.34       42.69         Capacity Adjustment:       5.14       10.28       20.55         Total Capacity Required per Day:       25.69       51.38       102.75         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.4         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.37         Total Per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370	- Labor:	\$648		
Waste Generated:       9.88       19.76       39.51         Flush Fluid Generated:       10.67       21.34       42.69         Capacity Adjustment:       5.14       10.28       20.55         Total Capacity Required per Day:       25.69       51.38       102.75         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.4         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Clean-out Cycles per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Hours per Trip: Trips per Day:	12 1	24 1	48 1
Flush Fluid Generated:       10.67       21.34       42.69         Capacity Adjustment:       5.14       10.28       20.55         Total Capacity Required per Day:       25.69       51.38       102.75         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.4         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Clean-out Cycles per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Waste Generation Data			
Capacity Adjustment:       5.14       10.28       20.55         Total Capacity Required per Day:       25.69       51.38       102.75         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.4         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Waste Generated:	9.88	19.76	39.51
Total Capacity Required per Day:       25.69       51.38       102.75         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.4         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Flush Fluid Generated:	10.67	21.34	42.69
Pumpout Labor Cost:       \$0.1       \$0.2       \$0.4         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       128       85         Waste Disposal Cost per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Capacity Adjustment:	5.14	10.28	20.55
Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       128       85         Waste Disposal Cost per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Total Capacity Required per Day:	25.69	51.38	102.75
Cleaning Labor Cost:       \$18.0       \$18.0       \$18.0         Total Pumpout/Cleaning Cost per Day:       \$20.2       \$20.3       \$20.5         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       128       85         Waste Disposal Cost per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Pumpout Labor Cost:	\$0.1	\$0.2	\$0.4
Total Pumpout/Cleaning Cost per Day:         \$20.2         \$20.3         \$20.5           Days Operated per Year:         255         255         255           Clean-out Cycles per Year:         255         128         85           Waste Disposal Cost per Year:         \$89         \$89         \$119           Maximum Continuous Hours of Service:         109.8         109.8         109.8           Total Operating Cost per Service Hour:         \$2.20         \$1.37         \$0.82           - Trip Related:         \$1.71         \$0.88         \$0.46           - Non-Trip Related:         \$0.49         \$0.49         \$0.37           Total per-Car Operating Cost per Year:         \$6,755         \$4,187         \$3,370           Total Fleet Operating Cost per Year:         \$141,857         \$87,933         \$70,775		\$2.1	\$2.1	\$2.1
Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       \$89       \$89       \$119         Waste Disposal Cost per Year:       \$109.8       \$109.8       \$109.8         Maximum Continuous Hours of Service:       \$109.8       \$109.8       \$109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775		•	\$18.0	\$18.0
Clean-out Cycles per Year:       255       128       85         Waste Disposal Cost per Year:       \$89       \$89       \$119         Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Total Pumpout/Cleaning Cost per Day:	\$20.2	\$20.3	\$20.5
Maximum Continuous Hours of Service:       109.8       109.8       109.8         Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Days Operated per Year: Clean-out Cycles per Year:			
Total Operating Cost per Service Hour:       \$2.20       \$1.37       \$0.82         - Trip Related:       \$1.71       \$0.88       \$0.46         - Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Waste Disposal Cost per Year:	\$89	\$89	\$119
- Trip Related: \$1.71 \$0.88 \$0.46 Non-Trip Related: \$0.49 \$0.49 \$0.37  Total per-Car Operating Cost per Year: \$6,755 \$4,187 \$3,370  Total Fleet Operating Cost per Year: \$141,857 \$87,933 \$70,775	Maximum Continuous Hours of Service:	109.8	109.8	109.8
- Non-Trip Related:       \$0.49       \$0.49       \$0.37         Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	Total Operating Cost per Service Hour:	\$2,20	\$1.37	\$0.82
Total per-Car Operating Cost per Year:       \$6,755       \$4,187       \$3,370         Total Fleet Operating Cost per Year:       \$141,857       \$87,933       \$70,775	- Trip Related:	\$1.71	\$0.88	\$0.46
Total Fleet Operating Cost per Year: \$141,857 \$87,933 \$70,775	- Non-Trip Related:	\$0.49	\$0.49	\$0.37
	Total per-Car Operating Cost per Year:	\$6,755	\$4,187	\$3,370
Total Fleet Capital Cost: \$646,884	Total Fleet Operating Cost per Year:	\$141,857	\$87,933	\$70,775
	Total Fleet Capital Cost:	\$646,884		

Favorable			Unfavorable		
\$30,804 \$28,500 \$2,304			\$30,804 \$28,500 \$2,304		
\$717 \$432 \$285			\$2,289 \$864 \$1,425		
12 1	24 1	48	12 1	24	48
9.88	19.76	39.51	9.88	19.76	39.51
8.32	16.63	33.26	13.86	27.72	55.44
4.55	9.10	18.19	5.93	11.87	23.74
22.74	45.49	90.97	29.67	59.35	118.69
\$0.1	\$0.2	\$0.3	\$0.1	\$0.3	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$18.0	\$18.0	\$18.0	\$18.0	<b>\$</b> 18.0	\$18.0
\$20.2	\$20.3	\$20.4	\$20.2	\$20.4	\$20.7
219 219	219 110	219 73	292 292	292 146	292 97
\$68	\$68	\$90	\$118	\$118	\$157
124.0	124.0	124.0	95.0	95.0	95.0
\$1.98	\$1.14	\$0.66	\$2.37	\$1.54	\$0.95
\$1.71	\$0.87	\$0.45	\$1.72	\$0.88	\$0.46
\$0.27	\$0.27	\$0.20	\$0.65	\$0.65	\$0.49
\$5,205	\$3,004	\$2,299	\$8,317	\$5,382	\$4,456
\$109,302	\$63,082	\$48,277	\$174,647	\$113,020	\$93,586
\$646,884			\$646,884		

Car Type: Toilet Type:

**Dome Coach Modified Vacuum** 

Manufacturer:

Number of Passengers: **Number of Toilets:** 

46

2

Total Tank Capacity (gals):

235.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		<del></del>
Maintenance Cost: - Labor: - Spare Parts:	\$1,212 \$432 \$780		e.
Hours per Trip: Trips per Day:	12 <sup>°</sup>	24 1	48 1
Waste Generation Data			
Waste Generated:	10.33	20.65	41.31
Flush Fluid Generated:	11.16	22.31	44.63
Capacity Adjustment:	5.37	10.74	21.48
Total Capacity Required per Day:	26.86	53.71	107.42
Pumpout Labor Cost: .	\$0.1	\$0.2	\$0.4
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$93	\$93	\$124
Maximum Continuous Hours of Service:	105.0	105.0	105.0
Total Operating Cost per Service Hour:	\$1.61	\$1.02	\$0.63
- Trip Related:	\$1.21	\$0.63	\$0.33
- Non-Trip Related:	\$0.40	\$0.40	\$0.30
Total per-Car Operating Cost per Year:	\$4,936	\$3,135	\$2,575
Total Fleet Operating Cost per Year:	\$59,236	\$37,621	\$30,903
Total Fleet Capital Cost:	\$336,192		

Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
12 1	24 1	48 1	12 1	24 1	48 1
10.33 8.69	20.65 17.39	41.31 34.78	10.33 14.49	20.65 28.98	41.31 57.96
4.76	9.51	19.02	6.20	26.96 12.41	24.82
23.78	47.55	95.11	31.02	62.04	124.09
20.70	47.55	93.11	31.02	02.04	124.09
\$0.1	\$0.2	\$0.3	\$0.1	\$0.3	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.3	\$14.4	\$14.2	\$14.4	\$14.7
219 219	219 110	219 73	292 292	292 146	292 97
\$71	\$71	\$94	\$123	\$123	\$164
118.6	118.6	118.6	90.9	90.9	90.9
\$1.42	\$0.83	\$0.48	\$1.76	\$1.17	\$0.74
\$1.21	\$0.62	\$0.33	\$1.22	\$0.63	\$0.34
\$0.21	\$0.21	\$0.16	\$0.54	\$0.54	\$0.40
\$3,726	\$2,182	\$1,697	\$6,159	\$4,100	\$3,469
\$44,709	\$26,182	\$20,365	\$73,904	\$49,201	\$41,629
\$336,192			\$336,192	٥	

Car Type: Toilet Type: Amlounge II

Modified Vacuum

Manufacturer:

Number of Passengers:

49 2

Number of Toilets: Total Tank Capacity (gals):

235.0

Scenario:

**Expected** 

Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost: Total Pumpout/Cleaning Cost per Day:  Days Operated per Year: Clean-out Cycles per Year:  Waste Disposal Cost per Year: Total Operating Cost per Service Hour: Trip Related: Non-Trip Related: Total per-Car Operating Cost per Year:  \$1.88  23.77  47.  5.72  11.44  22.  80.1  \$0.2  \$1.21  \$2.1  \$	333			•
- Labor: - Spare Parts: - Spare Part	- Equipment:	\$26,000		
Trips per Day:       1       1         Waste Generation Data       11.00       22.00       44.         Flush Fluid Generated:       11.88       23.77       47.         Capacity Adjustment:       5.72       11.44       22.         Total Capacity Required per Day:       28.61       57.21       114.         Pumpout Labor Cost:       \$0.1       \$0.2       \$1         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.         Cleaning Labor Cost:       \$12.0       \$12.0       \$1         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$1         Days Operated per Year:       255       255       255       2         Clean-out Cycles per Year:       255       255       2       2         Waste Disposal Cost per Year:       \$99       \$99       \$1         Maximum Continuous Hours of Service:       98.6       98.6       99         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0         - Trip Related:       \$0.40       \$0.40       \$0.40         Non-Trip Related:       \$0.40       \$0.40       \$0.40         Total per-Car Operating Cost per Year:       \$4,944       \$3,143 <t< td=""><td>- Labor:</td><td>\$432</td><td></td><td></td></t<>	- Labor:	\$432		
Waste Generated:       11.00       22.00       44.         Flush Fluid Generated:       11.88       23.77       47.         Capacity Adjustment:       5.72       11.44       22.         Total Capacity Required per Day:       28.61       57.21       114.         Pumpout Labor Cost:       \$0.1       \$0.2       \$1.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$12.0       \$12.0       \$11.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$1.         Days Operated per Year:       255       255       25       25         Clean-out Cycles per Year:       255       255       22         Waste Disposal Cost per Year:       \$99       \$99       \$1         Maximum Continuous Hours of Service:       98.6       98.6       99.6         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0.         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	Hours per Trip: Trips per Day:		24	48 1
Waste Generated:       11.00       22.00       44.         Flush Fluid Generated:       11.88       23.77       47.         Capacity Adjustment:       5.72       11.44       22.         Total Capacity Required per Day:       28.61       57.21       114.         Pumpout Labor Cost:       \$0.1       \$0.2       \$1.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$12.0       \$12.0       \$11.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$1.         Days Operated per Year:       255       255       25       25         Clean-out Cycles per Year:       255       255       22         Waste Disposal Cost per Year:       \$99       \$99       \$1         Maximum Continuous Hours of Service:       98.6       98.6       99.6         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0.         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	Waste Generation Data			
Capacity Adjustment: 5.72 11.44 22. Total Capacity Required per Day: 28.61 57.21 114.  Pumpout Labor Cost: \$0.1 \$0.2 \$1.00 \$1.		11.00	22.00	44.00
Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost: Total Pumpout/Cleaning Cost per Day:  Days Operated per Year: Clean-out Cycles per Year:  Waste Disposal Cost per Year:  Maximum Continuous Hours of Service: Total Operating Cost per Service Hour: Trip Related: Non-Trip Related:  Total per-Car Operating Cost per Year:  \$0.1 \$0.2 \$1 \$0.1 \$0.2 \$1 \$0.1 \$0.2 \$1 \$0.2 \$1 \$0.1 \$0.2 \$1 \$0.2 \$1 \$0.1 \$0.2 \$1 \$0.2 \$1 \$0.1 \$0.2 \$1 \$0.2 \$1 \$0.2 \$1 \$0.2 \$1 \$0.3 \$1 \$0.4 \$0 \$0.40 \$0.40 \$0 \$0 \$0.40 \$0 \$0 \$0.40 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	Flush Fluid Generated:	11.88	23.77	47.54
Pumpout Labor Cost:       \$0.1       \$0.2       \$1         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$3         Cleaning Labor Cost:       \$12.0       \$12.0       \$15         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$16         Days Operated per Year:       255       255       255       22         Clean-out Cycles per Year:       255       128       28         Waste Disposal Cost per Year:       \$99       \$99       \$1         Maximum Continuous Hours of Service:       98.6       98.6       98         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0         - Trip Related:       \$0.40       \$0.40       \$0         - Non-Trip Related:       \$0.40       \$0.40       \$0         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	Capacity Adjustment:	5.72	11.44	22.89
Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$3.7         Cleaning Labor Cost:       \$12.0       \$12.0       \$13.7         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.2         Days Operated per Year:       255       255       255       255         Clean-out Cycles per Year:       255       128       255 <td< td=""><td>Total Capacity Required per Day:</td><td>28.61</td><td>57.21</td><td>114.43</td></td<>	Total Capacity Required per Day:	28.61	57.21	114.43
Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.2         Days Operated per Year:       255       255       255       2255 <td>Pumpout Labor Cost:</td> <td></td> <td>\$0.2</td> <td>\$0.5</td>	Pumpout Labor Cost:		\$0.2	\$0.5
Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.2         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       255       128         Waste Disposal Cost per Year:       \$99       \$99       \$1         Maximum Continuous Hours of Service:       98.6       98.6       96.6         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0.         - Trip Related:       \$1.22       \$0.63       \$0.         - Non-Trip Related:       \$0.40       \$0.40       \$0.         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Days Operated per Year:       255       255       128         Clean-out Cycles per Year:       \$99       \$99       \$1         Waste Disposal Cost per Year:       \$98.6       98.6       98.6         Maximum Continuous Hours of Service:       98.6       98.6       98.6         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0.         - Trip Related:       \$1.22       \$0.63       \$0.         - Non-Trip Related:       \$0.40       \$0.40       \$0.         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	_	\$12.0	\$12.0	\$12.0
Clean-out Cycles per Year:       255       128         Waste Disposal Cost per Year:       \$99       \$99       \$1         Maximum Continuous Hours of Service:       98.6       98.6       98.6         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0.         - Trip Related:       \$1.22       \$0.63       \$0.         - Non-Trip Related:       \$0.40       \$0.40       \$0.         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.6
Maximum Continuous Hours of Service:       98.6       98.6       96.6         Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0.63         - Trip Related:       \$1.22       \$0.63       \$0.63         - Non-Trip Related:       \$0.40       \$0.40       \$0.40         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	Days Operated per Year: Clean-out Cycles per Year:			255 85
Total Operating Cost per Service Hour:       \$1.61       \$1.03       \$0.00         - Trip Related:       \$1.22       \$0.63       \$0.00         - Non-Trip Related:       \$0.40       \$0.40       \$0.40         Total per-Car Operating Cost per Year:       \$4,944       \$3,143       \$2,5	Waste Disposal Cost per Year:	\$99	\$99	\$133
- Trip Related: \$1.22 \$0.63 \$0.63 \$0.63 \$0.40 \$0	Maximum Continuous Hours of Service:	98.6	98.6	98.6
- Non-Trip Related: \$0.40 \$0.40 \$0. Total per-Car Operating Cost per Year: \$4,944 \$3,143 \$2,5	Total Operating Cost per Service Hour:	\$1.61	\$1.03	\$0.63
Total per-Car Operating Cost per Year: \$4,944 \$3,143 \$2,5	- Trip Related:	\$1.22	\$0.63	\$0.34
	- Non-Trip Related:	\$0.40	\$0.40	\$0.30
Total Fleet Operating Cost per Year: \$123,608 \$78,576 \$64,6	Total per-Car Operating Cost per Year:	\$4,944	\$3,143	\$2,586
l l	Yotal Fleet Operating Cost per Year:	\$123,608	\$78,576	\$64,647
Total Fleet Capital Cost: \$700,400	Total Fleet Capital Cost:	\$700,400		

Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		·
12 1	24 1	48 1	12 1	24 1	48
11.00	22.00	44.00	11.00	22.00	44.00
9.26	18.52	37.04	15.44	30.87	61.74
5.07	10.13	20.26	6.61	13.22	26.44
25.33	50.65	101.31	33.04	66.09	132.18
\$0.1	\$0.2	\$0.4	. \$0.2	\$0.3	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14,2	\$14.3	\$14.5	\$14.3	\$14.4	\$14.7
219 219	219 110	219 73	292 292	292 146	292 97
\$75	\$75	\$101	\$131	\$131	\$175
111.3	111.3	111.3	85.3	85.3	85.3
\$1.42	\$0.83	\$0.49	\$1.76	\$1.17	\$0.75
\$1.21	\$0.62	\$0.33	\$1.23	\$0.64	\$0.34
\$0.21	\$0.21	\$0.16	\$0.54	\$0.54	\$0.40
\$3,732	\$2,188	\$1,705	\$6,169	\$4,111	\$3,483
\$93,290	\$54,692	\$42,623	\$154,237	\$102,772	\$87,087
\$700,400			\$700,400		•

Car Type:

Sleeper 10-6

Toilet Type:

**Modified Vacuum** 

Manufacturer:

Number of Passengers: Number of Toilets: 22 17

Total Tank Capacity (gals):

235.0

Scenario:

Expected

Capital Cost	\$69,836		
- Equipment:	\$63,500		
- Installation:	\$6,336		
Maintenance Cost:	\$5,577	•	
- Labor:	\$3,672		
- Spare Parts:	\$1,905		
Hours per Trip:	12	24	48
Trips per Day:	,	'	'
Waste Generation Data	•		
Waste Generated:	4.94	9.88	19.76
Flush Fluid Generated:	5.34	10.67	21.34
Capacity Adjustment:	2.57	5.14	10,28
Total Capacity Required per Day:	12.84	25.69	51.38
· ·			
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$102.0	\$102.0	\$102.0
Total Pumpout/Cleaning Cost per Day:	\$104.2	\$104.2	\$104.3
	• • • • •	• • • • • • •	• · · · ·
Days Operated per Year:	255	255	255
Cléan-out Cycles per Year:	255	128	85
West Disease October West	· <b>6</b> 4 5	<b>#</b> 45	
Waste Disposal Cost per Year:	\$45	\$45	\$60
Maximum Continuous Hours of Service:	219.6	219.6	219.6
		\$6.18	\$3.55
Total Operating Cost per Service Hour:	\$10.51	•	¥
- Trip Related:	\$8.69	\$4.36	\$2.19
- Non-Trip Related:	\$1.82	\$1.82	\$1.36
Total per-Car Operating Cost per Year:	\$32,233	\$18,934	¢14 501
Total per-car Operating Cost per Year:	<b>φ</b> 3∠,∠33	φ10,93 <del>4</del>	\$14,521
Total Fleet Operating Cost per Year:	\$2,843,091	\$1,552,591	\$1,190,684
Total Fleet Capital Cost:	\$5,726,552		

Favorable			Unfavorable		
\$69,836 \$63,500 \$6,336			\$69,836 \$63,500 \$6,336	:	
\$3,083 \$2,448 \$635			\$8,071 \$4,896 \$3,175		
. 12 1	24 1	48	12 1	24 1	48 1
4.94	9.88	19.76	4.94	9.88	19.76
4.16	8.32	16.63	6.93	13.86	27.72
2.27	4.55	9.10	2.97	5.93	11.87
11.37	22.74	45.49	14.84	29.67	59.35
\$0.0	\$0.1	\$0.2	\$0.1	\$0.1	\$0.3
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$104.1	\$104.2	\$104.3	\$104.2	\$104.2	\$104.4
219 219	219 110	219 73	292 292	292 146	292 97
\$34	\$34	\$45	\$59	\$59	\$79
248.0	248.0	248.0	190.1	190.1	190.1
\$9.86	\$5.53	\$3.06	\$11.00	\$6.66	\$3.92
\$8.69	\$4.35	\$2.19	\$8.70	\$4.36	\$2.19
\$1.17	\$1.17	\$0.88	\$2.30	\$2.30	\$1.73
\$25,924	\$14,525	\$10,740	\$38,547	\$23,349	\$18,309
\$2,125,758	\$1,191,044	\$880,647	\$3,160,883	\$1,914,598	\$1,501,333
\$5,726,552			\$5,726,552	· · · · · · · · · · · · · · · · · · ·	

Car Type: Amcoach II
Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 59
Number of Toilets: 2
Total Tank Capacity (gals): 235.0

Scenario: Expected

•			
Capital Cost	\$28,016		
- Equipment:	\$26,000		
- Installation:	\$2,016		
Maintenance Cost:	\$1,212		
- Labor:	\$432		
- Spare Parts:	\$780		
Hours per Trip:	24	48	72
Trips per Day:	1 .	1	1
Waste Generation Data			
Waste Generated:	26.49	52.98	79.47
Flush Fluid Generated:	28.62	57.24	85.86
Capacity Adjustment:	13.78	27.56	41.33
Total Capacity Required per Day:	68.89	137.78	206.67
Pumpout Labor Cost:	\$0.3	\$0.6	\$0.9
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.7	\$15.0
Total Tumpouroleaning Cost per Day.	φ14.4	φ 14.7 *	\$15.0
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$120	\$160	\$180
, ,	·	·	•
Maximum Continuous Hours of Service:	81.9	81.9	81.9
Total Operating Cost per Service Hour:	\$1.03	\$0.64	\$0.51
- Trip Related;	\$0.64	\$0.34	\$0.25
- Non-Trip Related:	\$0.40	\$0.30	\$0.26
Total per-Car Operating Cost per Year:	\$3,170	\$2,621	\$2,347
Total Fleet Operating Cost per Year:	\$377,174	\$311,921	\$279,295
Total Fleet Capital Cost:	\$3,333,904	<u> </u>	

Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016	,		\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
24 1	48 1	72 1	24	48 1	72 1
26.49	52.98	79.47	26.49	52.98	79.47
22.30	44.60	66.91	37.17	74.34	111.51
12.20	24.40	36.59	15.92	31.83	47.75
60.99	121.98	182.97	79.58	159.15	238.73
\$0.2	\$0.4	\$0.7	\$0.4	\$0.7	\$1.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.3	\$14.5	\$14.8	\$14.5	\$14.8	\$17.3
219 110	219 73	219 55	292 146	292 97	292 73
\$91	\$121	\$136	\$158	\$211	\$237
92.5	92.5	92.5	70.9	70.9	70.9
\$0.84	\$0.49	\$0.38	\$1.18	\$0.76	\$0.64
\$0.63	\$0.34	\$0.24	\$0.65	\$0.35	\$0.29
\$0.21	\$0.16	\$0.14	\$0.54	\$0.40	\$0.36
\$2,207	\$1,731	\$1,493	\$4,147	\$3,531	\$3,377
\$262,657	\$205,985	\$177,649	\$493,478	\$420,241	\$401,864
\$3,333,904			\$3,333,904		Ç

Slumbercoach 24-8 Car Type: Toilet Type:

**Modified Vacuum** 

40

Manufacturer:

Number of Passengers:

Number of Toilets: 32

Total Tank Capacity (gals): 235.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$111,656 \$101,000 \$10,656		
Maintenance Cost: - Labor: - Spare Parts:	\$9,942 \$6,912 \$3,030		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated;	17.96	35.92	53.88
Flush Fluid Generated:	19.40	38.81	58.21
Capacity Adjustment:	9.34	18.68	28.02
Total Capacity Required per Day:	46.71	, 93.41	140.12
Pumpout Labor Cost:	\$0.2	\$0.4	\$0.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$192.0	\$192.0	\$192.0
Total Pumpout/Cleaning Cost per Day:	\$194.3	\$194.5	\$194.7
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$81	\$108	\$122
Maximum Continuous Hours of Service:	120.8	120.8	120.8
Total Operating Cost per Service Hour:	\$11.36	\$6.51	\$4.89
- Trip Related:	\$8.12	\$4.08	\$2.73
- Non-Trip Related:	\$3.24	\$2.43	\$2.16
Total per-Car Operating Cost per Year:	\$34,844	\$26,614	\$22,499
Total Fleet Operating Cost per Year:	\$557,507	\$425,826	\$359,985
Total Fleet Capital Cost:	\$1,786,496		

Favorable			Unfavorable		
\$111,656 \$101,000 \$10,656			\$111,656 \$101,000 \$10,656		
\$5,618 \$4,608 \$1,010			\$14,266 \$9,216 \$5,050		
24	<b>48</b> 1	72 1	24	<b>48</b> 1	72
17.96	35.92	53.88	17.96	35.92	53.88
15.12	30.24	45.36	25.20	50.40	75.60
8.27	16.54	24.81	10.79	21.58	32.37
41.35	82.70	124.05	53.95	107.90	161.85
\$0.2	\$0.3	\$0.5	\$0.3	\$0.5	\$0.8
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$192.0	\$192.0	\$192.0	\$192.0	\$192.0	\$192.0
\$194.3	\$194.4	\$194.6	\$194.4	\$194.6	\$194.9
219 110	219 73	219 . 55	292 146	292 97	292 73
\$62	\$82	\$92	\$107	\$143	\$161
136.4	136.4	136.4	104.5	104.5	104.5
\$10.25	\$5.68	\$4.15	\$12.20	\$7.14	\$5.45
\$8.12	\$4.07	\$2.73	\$8.13	\$4.08	\$2.74
\$2.14	\$1.60	\$1.43	\$4.07	\$3.05	\$2.71
\$26,950	\$19 <b>,</b> 891	\$16,362	\$42,749	\$33,350	\$28,651
\$431,201	\$318,264	\$261,795	\$683,976	\$533,605	\$458,419
\$1,786,496			\$1,786,496		

Car Type: Viewliner-Sleeper

Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers:

Total Tank Capacity (gals):

Number of Toilets: 17

Scenario: Expected

34

235.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$69,836 · \$63,500 \$6,336		
- iristaliation.	φο,336		
Maintenance Cost: - Labor:	\$5,577 \$0,670	,	
- Spare Parts:	\$3,672 \$1,905		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	15.27	30.53	45.80
Flush Fluid Generated:	16.49	32.99	49.48
Capacity Adjustment:	7.94	15.88	23.82
Total Capacity Required per Day:	39.70	79.40	119.10
Pumpout Labor Cost:	\$0.2	\$0.3	\$0.5
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$102.0	\$102.0	\$102.0
Total Pumpout/Cleaning Cost per Day:	\$104.3	\$104.4	\$104.6
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$69	<b>\$92</b> .	\$103
Maximum Continuous Hours of Service:	142.1	142.1	142.1
Total Operating Cost per Service Hour:	\$6.19	\$3.56	\$2.69
- Trip Related:	\$4.37	\$2.20	\$1.48
- Non-Trip Related:	\$1.82	\$1.36	\$1.21
Total per-Car Operating Cost per Year:	\$18,966	\$14,563	\$12,361
Total Fleet Operating Cost per Year:	\$37,932	\$29,126	\$2^,723
Total Fleet Capital Cost:	\$139,672	·	

				•	
Favorable			Unfavorable		
\$69,836 \$63,500 \$6,336			\$69,836 \$63,500 \$6,336		
\$3,083 \$2,448 \$635			\$8,071 \$4,896 \$3,175		
24 1	. 48 1	72 1	24	48 1	72 1
15.27	30.53	45.80	15.27	30.53	45.80
12.85	25.70	38.56	21.42	42.84	64.26
7.03	14.06	21.09	9.17	18.34	27.51
35.15	70.30	105.44	45.86	91.72	137.57
\$0.1	\$0.3	\$0.4	\$0.2	\$0.4	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$104.2 <sup>°</sup>	\$104.4	\$104.5	\$104.3	\$104.5	\$104.7
219 110	219 73	219 55	292 146	292 <sup>°</sup> 97	292 73
\$52	\$70	\$79	\$91	\$121	\$137
160.5	160.5	160.5	123.0	123.0	123.0
\$5.54	\$3.07	\$2.25	\$6.68	\$3.93	\$3.02
\$4.36	\$2.19	\$1.47	\$4.37	\$2.20	\$1.48
\$1.17	\$0.88	\$0.78	\$2.30	\$1.73	\$1.54
\$14,548	\$10,771	\$8,882	\$23,392	\$18,367	\$15,854
\$29,097	\$21,542	\$17,764	\$46,784	\$36,733	\$31,708
\$139,672			\$139,672		

Car Type: Toilet Type: Amcafe

Modified Vacuum

2 .

Manufacturer:

Number of Passengers:

53 Number of Toilets:

Total Tank Capacity (gals): 235.0

Scenario:	Expected		
Capital Cost	\$28,016		
- Equipment:	\$26,000		
- Installation:	\$2,016		
Maintenance Cost:	\$1,212		
- Labor: - Spare Parts:	\$432 \$780		l
Hours per Trip:	8	16	24
Trips per Day:	2	1	1
Waste Generation Data			,
Waste Generated;	15.86	15.86	23.80
Flush Fluid Generated:	17.14	17.14	25.71
Capacity Adjustment:	8.25	8.25	12.38
Total Capacity Required per Day:	41.26	41.26	61.88
Pumpout Labor Cost:	\$0.2	\$0.2	\$0.3
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.3	\$14.3	\$14.4
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	255	255	128
Waste Disposal Cost per Year:	\$143	\$143	\$108
Maximum Continuous Hours of Service:	91.1	91.1	91.1
Total Operating Cost per Service Hour:	\$1.22	\$1.22	\$1.03
- Trip Related:	\$0.93	\$0.93	\$0.63
- Non-Trip Related:	\$0.30	\$0.30	\$0.40
Total per-Car Operating Cost per Year:	\$5,002	\$5,002	\$3,154
Total Fleet Operating Cost per Year:	\$225,076	\$225,076	\$141,914
Total Fleet Capital Cost:	\$1,260,720		

Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		,
8 2	16 1	24 1	8 2	16 1	24
15.86	15.86	23.80	15.86	15.86	23.80
13.36	13.36	20.03	22.26	22.26	33.39
7.31 .	7.31	10.96	9.53	9.53	14.30
36.53	36.53	54.79	47.66	47.66	71.48
\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.3
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.3	\$14.3	\$14.3	\$14.4
219 219	219 219	219 110	292 292	292 292	292 146
\$109	\$109	\$82	\$189	\$189	\$142
102.9	102.9	102.9	78.9	78.9	78.9
\$1.08	\$1.08	\$0.84	\$1.34	\$1.34	\$1.18
\$0.92	\$0.92	\$0.63	\$0.94	\$0.94	\$0.64
\$0.16	\$0.16	\$0.21	\$0.40	\$0.40	\$0.54
\$3,774	\$3,774	\$2,195	\$6,247	\$6,247	\$4,125
\$169,827	\$169,827	\$98,797	\$281,135	\$281,135	\$185,638
\$1,260,720			\$1,260,720		

Car Type: Ar Toilet Type: Mod

Amcoach
Modified Vacuum

Manufacturer:

Number of Passengers: Number of Toilets:

84 2

Total Tank Capacity (gals):

235.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated:	25.14	25.14	37.72
Flush Fluid Generated:	27.17	27.17	40.75
Capacity Adjustment:	13.08	13.08	19.62
Total Capacity Required per Day:	65.39	65.39	98.08
Pumpout Labor Cost:	\$0.3	\$0.3	\$0.4
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.4	\$14.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$227	\$227	\$170
Maximum Continuous Hours of Service:	57.5	57.5	57.5
Total Operating Cost per Service Hour:	\$1.25	\$1.25	\$1.06
- Trip Related:	\$0.95	\$0.95	\$0.66
- Non-Trip Related:	\$0.30	\$0.30	\$0.40
Total per-Car Operating Cost per Year:	\$5,111	\$5,111	\$3,236
Total Fleet Operating Cost per Year:	\$1,359,570	\$1,359,570	\$860,706
Total Fleet Capital Cost:	\$7,452,256		

Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016	-,	•	\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
. 8 2	16 1	24 1	8 2	16 1	24
25.14	25.14	37.72	25.14	25.14	37.72
21.17	21.17	31.75	35.28	35.28	52.92
11.58	11.58	17.37	15.11	15.11	22.66
57.89	57.89	, 86.84	75.53	75.53	113.30
\$0.2	\$0.2	\$0.3	\$0.4	\$0.4	\$0.5
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.3	\$14.3	\$14.4	\$14.5	\$14.5	\$14.6
219 219	219 219	219 110	292 292	292 292	292 146
\$172	\$172	\$129	\$300	\$300	\$225
65,0	65.0	65.0	49.8	49.8	49.8
\$1.10	\$1.10	\$0.86	\$1.37	\$1.37	\$1.21
\$0.94	\$0.94	\$0.65	\$0.97	\$0.97	\$0.67
\$0.16	\$0.16	\$0.21	\$0.40	\$0.40	\$0.54
\$3,855	\$3,855	\$2,256	\$6,396	\$6,396	\$4,237
\$1,025,344	\$1,025,344	\$600,105	\$1,701,379	\$1,701,379	\$1,126,995
\$7,452,256			\$7,452,256		

Car Type: **Amclub** Toilet Type: **Modified Vacuum** Manufacturer:

Number of Passengers: 41 **Number of Toilets:** 2

Total Tank Capacity (gals): 235.0

Scenario:	Expected

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016	,	
Maintenance Cost: - Labor: - Spare Parts:	\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated:	12.27	12.27	18.41
Flush Fluid Generated:	· 13.26	13.26	19.89
Capacity Adjustment:	6.38	6.38	9.57
Total Capacity Required per Day:	31.92	31.92	47.87
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$111	\$111	\$83
Maximum Continuous Hours of Service:	117.8	117.8	117.8
Total Operating Cost per Service Hour:	\$1.21·	\$1.21	\$1.02
- Trip Related:	\$0.92	\$0.92	\$0.62
- Non-Trip Related:	\$0.30	\$0.30	\$0.40
Total per-Car Operating Cost per Year:	\$4,959	\$4,959	\$3,122
Total Fleet Operating Cost per Year:	\$119,024	\$119,024	\$74,925
Total Fleet Capital Cost:	\$672,384		

Favorable			Unfavorable		
\$28,016 \$26,000	<del> </del>		\$28,016 \$26,000	•	
\$2,016			\$2,016		
\$548 \$288			\$1,876 \$576		
\$260			\$1,300		
8 2	16 1	24 1	8 2	16 1	° 24 1
•					
12.27	12.27	18.41	12.27	12.27	18.41
10.33	10.33	15.50	17.22	17.22	25.83
5.65	5.65	8.48	7.37	7.37	11.06
28.26	28.26	42.38	36.87	36.87	55.30
\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.3
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.3	\$14.3	\$14.3	\$14.4
219 219	219 219	219 110	292 292	292 292	292 146
2.0	2.0			202	140
\$84	\$84	\$63	\$146	\$146	\$110
133.1	133.1	133.1	102.0	102.0	102.0
\$1.07	\$1.07	\$0.83	\$1.32	\$1.32	\$1.16
\$0.91	\$0.91	\$0.62	\$0.92	\$0.92	\$0.63
\$0.16	\$0.16	\$0.21	\$0.40	\$0.40	\$0.54
\$3,743	\$3,743	\$2,172	\$6,190	\$6,190	\$4,082
\$89,824	\$89,824	\$52,129	\$148,557	\$148,557	\$97,971
\$672,384			\$672,384		

Car Type: Met-Srvc Dinette
Toilet Type: Modified Vacuum Manufacturer:

Number of Passengers: 23
Number of Toilets: 2
Total Tank Capacity (gals): 235.0

Scenario:	Expected
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Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	4.65	5.58	6.51
Capacity Adjustment:	2.24	2.69	3.13
Total Capacity Required per Day:	11.19	13.43	15.67
Pumpout Labor Cost:	\$0.0	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.1	\$14.2	\$14.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$39	\$47 <sup>-</sup>	\$54
Maximum Continuous Hours of Service:	210.0	210.0	210.0
Total Operating Cost per Service Hour:	\$1.90	<b>\$1.59</b>	\$1.37
- Trip Related:	\$1.43	\$1.19	\$1.03
- Non-Trip Related:	\$0.47	\$0.40	\$0.34
Total per-Car Operating Cost per Year:	\$4,865	\$4,875	\$4,886
Total Fleet Operating Cost per Year:	\$63,249	\$63,381	\$63,513
Total Fleet Capital Cost:	\$364,208	- <del></del>	

Favorable			Unfavorable	*	£
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		,
2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
3.62	4.35	5.07	6.04	7.25	8.45
1.98	2.38	2.77	2.59	3.10	3.62
9.91	11.89	13.87	12.93	15.51	18.10
\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.1	\$14.1	\$14.2	\$14.2	\$14.2	\$14.2
219 219	219 219	219 219	292 292	292 292	292 292
\$30	\$35	\$41	\$51.	\$62	\$72
237.2	237.2	237.2	181.8	181.8	181.8
\$1.68	\$1.40	\$1.20	\$2.08	\$1.73	\$1.49
\$1.43	\$1.19	\$1.02	\$1.43	\$1.20	\$1.03
\$0.25	\$0.21	\$0.18	\$0.64	\$0.54	\$0.46
\$3,673	\$3,681	\$3,688	\$6,062	\$6,076	\$6,090
\$47,753	\$47,851	\$47,948	\$78,808	\$78,987	\$79,167
\$364,208	,=,_,		\$364,208		-

Car Type: Met-Srvc Coach
Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 60

Number of Toilets: 2

Total Tank Capacity (gals): 235.0

Scenar	io:	Expected

Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		·
Maintenance Cost: - Labor: - Spare Parts:	\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	11.23	13.47	15.72
Flush Fluid Generated:	12.13	14.55	16.98
Capacity Adjustment:	5.84	7.01	8.17
Total Capacity Required per Day:	29.19	35.03	40.87
Pumpout Labor Cost:	\$0.1	\$0 <u>.</u> 1	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	, \$101	\$122	\$142
Maximum Continuous Hours of Service:	80.5	80.5	80.5
Total Operating Cost per Service Hour:	\$1.94	\$1.62	\$1.40
- Trip Related:	\$1.46	\$1.23	\$1.06
- Non-Trip Related:	\$0.47	\$0.40	\$0.34
Total per-Car Operating Cost per Year:	\$4,947	\$4,973	\$5,000
Total Fleet Operating Cost per Year:	\$247,348	\$248,673	\$249,997
Total Fleet Capital Cost:	\$1,400,800		

		•			
Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		•
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
2 5	12 1	7 2	2 5	12 1	7 2
11.23	13.47	15.72	11.23	13.47	15.72
9.45	11.34	13.23	15.75	18.90	22.05
5.17	6.20	7.24	6.74	8.09	9.44
25.84	31.01	36.18	33.72	40.46	47.21
\$0.1	\$0.1	\$0.1	· \$0.2	\$0.2	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.3	\$14.3	\$14.3
219 219	219 219	219 219	292 292	292 292	292 292
\$77	\$92	\$108	\$134	\$161	\$187
90.9	90.9	90.9	69.7	69.7	69.7
\$1.70	\$1.43	\$1.23	\$2.11	\$1.77	\$1.53
\$1.45	\$1.22	\$1.05	\$1.47	\$1.24	\$1.07
\$0.25	\$0.21	\$0.18	\$0.64	\$0.54	\$0.46
\$3,734	\$3,753	\$3,773	\$6,173	\$6,209	\$6,245
\$186,678	\$187,655	\$188,632	\$308,655	\$310,454	\$312,253
\$1,400,800		}	\$1,400,800		

Car Type: Met-Srvc Club
Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 33 Number of Toilets: 2 Total Tank Capacity (gals): 235.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated;	6.17	7.41	8.64
Flush Fluid Generated:	6.67	8.00	9.34
Capacity Adjustment:	3.21	3.85	4.50
Total Capacity Required per Day:	16.05	19.27	22.48
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$56	\$67	\$78
Maximum Continuous Hours of Service:	146.4	146.4	146.4
Total Operating Cost per Service Hour:	\$1.91	\$1.60	\$1.37
- Trip Related:	\$1.44	\$1.20	\$1.04
- Non-Trip Related:	\$0.47	\$0.40	\$0.34
Total per-Car Operating Cost per Year:	\$4,887	\$4,902	\$4,917
Total Fleet Operating Cost per Year:	\$63,536	\$63,725	\$63,915
Total Fleet Capital Cost:	\$364,208		

Favorable			Unfavorable		
\$28,016			\$28,016		
\$26,000			\$26,000		Į.
\$2,016			\$2,016		
<b>4</b> m			4		
\$548 \$288			\$1,876		
\$260 \$260			\$576 \$1,300		
•		1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
· 2 5	12 1	7 2	2 5	12	7 2
5	1	2	5	1	2
6.17	7.41	8.64	6.17	7.41	8.64
5.20	6.24	7.28	8.66	10.40	12.13
2.84	3.41	3.98	3.71	4.45	5.19
14.21	17.06	19.90	18.55	22.25	25.96
					*
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.2	\$14.2	\$14.2
0.10					
219 219	219 219	219 219	292 292	292 292	292 292
213	213	213	292	LSL .	
\$42	\$51	\$59	\$74	\$88	\$103
Ψ42	ΨΟΙ	ΨΟΘ	Ψ/4	φου	\$103
165.3	165.3	165.3	126.7	126.7	126.7
\$1.68	\$1.41	\$1.21	\$2.09	\$1.74	\$1.50
\$1.43	\$1.20	\$1.03	\$1.44	\$1.21	\$1.04
\$0.25	\$0.21	\$0.18	\$0.64	\$0.54	\$0.46
					i
\$3,690	\$3,700	\$3,711	\$6,092	\$6,112	\$6,132
	· .				
\$47,965	\$48,105	\$48,244	\$79,198	\$79,455	\$79,712
\$364,208			\$364,208		

Car Type: Amdinette

Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 23

Number of Toilets: 2

Total Tank Capacity (gals): 235.0

Scenario:	Expected

Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$1,212 \$432 \$780		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	4.65	5.58	6.51
Capacity Adjustment:	2.24	2.69	3.13
Total Capacity Required per Day:	11.19	13.43	15.67
Pumpout Labor Cost:	\$0.0	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.1	\$14.2	\$14.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$39	\$47	\$54
Maximum Continuous Hours of Service:	210.0	210.0	210.0
Total Operating Cost per Service Hour:	\$1.90	\$1.59	\$1.37
- Trip Related:	\$1.43	\$1.19	\$1.03
- Non-Trip Related:	\$0.47	\$0.40	\$0.34
Total per-Car Operating Cost per Year:	\$4,865	\$4,875	\$4,886
Total Fleet Operating Cost per Year:	\$121,633	\$121,887	\$122,140
Total Fleet Capital Cost:	\$700,400		

Favorable		·	Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
3.62	4.35	5.07	6.04	7.25	8.45
1.98	2.38	2.77	2.59	3.10	3.62
9.91	11.89	13.87	12.93	15.51	18.10
\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.1	\$14.1	\$14.2	\$14.2	\$14.2	\$14.2
219 219	219 219	219 219	292 292	292 292	292 292
\$30	\$35	\$41	\$51	\$62	\$72
237.2	237.2	237.2	181.8	181.8	181.8
\$1.68	\$1.40	\$1.20	\$2.08	\$1.73	\$1.49
\$1.43	\$1.19	\$1.02	\$1.43	\$1.20	\$1.03
\$0.25	\$0.21	\$0.18	\$0.64	\$0.54	\$0.46
\$3,673	\$3,681	\$3,688	\$6,062	\$6,076	\$6,090
\$91,833	\$92,02°	\$92,208	\$151,554	\$151,899	\$152,244
\$700,400			\$700,400		

Car Type:

Amcoach

Toilet Type:

**Modified Vacuum** 

Manufacturer:

Number of Passengers:

60

Number of Toilets:

2

Total Tank Capacity (gals):

235.0

Scenario:

**Expected** 

Capital Cost - Equipment: - Installation:	\$28,016 \$26,000 \$2,016		
· installation.	φ <b>2,</b> 010		
Maintenance Cost: - Labor:	\$1,212 \$432		
- Spare Parts:	\$780		•
Hours per Trip: Trips per Day:	2	12	7 2
Thips per Day.	3	•	2
Waste Generation Data			
Waste Generated;	11.23	13.47	15.72
Flush Fluid Generated:	12.13	14.55	16.98
Capacity Adjustment:	5.84	7.01	8.17
Total Capacity Required per Day:	29.19	35.03	40.87
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	· \$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
· · ·			
Waste Disposal Cost per Year:	\$101	\$122	\$142
Maximum Continuous Hours of Service:	80.5	80.5	80.5
Total Operating Cost per Service Hour:	\$1.94	\$1.62	\$1.40
- Trip Related:	\$1.46	\$1.23	\$1.06
- Non-Trip Related:	\$0.47	\$0.40	\$0.34
Total per-Car Operating Cost per Year:	\$4,947	\$4,973	\$5,000
Total Fleet Operating Cost per Year:	\$153,356	\$154,177	\$154,998
Total Fleet Capital Cost:	\$868,496		

Favorable			Unfavorable		,
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
2 5	12 1	7 2	2 5	12 1	7 2
11.23	13.47	15.72	11.23	13.47	15.72
9.45	11:34	13.23	15.75	18.90	22.05
5.17	6.20	7.24	6.74	8.09	9.44
25.84	31.01	36.18	33.72	40.46	47.21
\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.3	\$14.3	\$14.3
219 219	219 219	219 219	292 292	292 292	292 292
\$77	\$92	\$108	\$134	\$161	\$187
90.9	90.9	90.9	69.7	69.7	69.7
\$1.70	\$1.43	\$1.23	\$2.11	\$1.77	\$1.53
\$1.45	\$1.22	\$1.05	\$1.47	\$1.24	\$1.07
\$0.25	\$0.21	\$0.18	\$0.64	\$0.54	\$0.46
\$3,734	\$3,753	\$3,773	\$6,173	\$6,209	\$6,245
\$115,741	\$116,346	\$116,952	\$191,366	\$192,481	\$193,597
\$868,496			\$868,496		

Car Type: Turbo Power Club
Toilet Type: Modified Vacuum Manufacturer:

Number of Passengers: 27

Number of Toilets:

Total Tank Capacity (gals): 235.0

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oodilano.	LAPOOLOG		
Capital Cost - Equipment: - Installation:	\$25,228 \$23,500 \$1,728		
Maintenance Cost: - Labor: - Spare Parts:	\$921 \$216 \$705		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	5.05	6.06	7.07
Flush Fluid Generated:	5.46	6.55	7.64
Capacity Adjustment:	2.63	3.15	3.68
Total Capacity Required per Day:	13.14	15.76	18.39
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.2	\$8.2	\$8.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$46	\$55	\$64
Maximum Continuous Hours of Service:	178.9	178.9	178.9
Total Operating Cost per Service Hour:	\$1.19	\$1.00	\$0.86
- Trip Related:	\$0.83	\$0.70	\$0.60
- Non-Trip Related:	\$0.36	\$0.30	\$0.26
Total per-Car Operating Cost per Year:	\$3,050	\$3,062	\$3,074
Total Fleet Operating Cost per Year	\$18,301	\$18,372	\$18,444
Total Fleet Capital Cost:	\$151,368		
•			

Favorable			Unfavorable		
\$25,228 \$23,500 \$1,728	,		\$25,228 \$23,500 \$1,728		
\$379 \$144 \$235			\$1,463 \$288 \$1,175		
2 5	12 1	7 2	2 5	· 12 1	7 2
5.05	6.06	7.07	5.05	6.06	7.07
4.25	5.10	5.95	7.09	8.51	9.92
2.33	2.79	3.26	3.03	3.64	4.25
11.63	13.96	16.28	15.17	18.21	21.24
\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.1	\$8.2	\$8.2	\$8.2	\$8.2	\$8.2
219 219	219 219	219 219	292 292	292 292	292 292
\$35	\$42	\$48	\$60	\$72	\$84
202.1	202.1	202.1	154.9	154.9	154.9
\$1.00	\$0.84	\$0.72	\$1.34	\$1.12	\$0.96
\$0.83	\$0.70	\$0.60	\$0.84	\$0.70	\$0.61
\$0.17	\$0.14	\$0.12	\$0.50	\$0.42	\$0.36
\$2,197	\$2,206	\$2,214	\$3,909	\$3,925	\$3,942
\$13,181	\$13,234	\$13,287	\$23,455	\$23,552	\$23,649
\$151,368			\$151,368		

Car Type: Toilet Type: Turbo Coach

Modified Vacuum

Manufacturer:

Number of Passengers: Number of Toilets: 72 2

Total Tank Capacity (gals):

235.0

Scenario: Expected

	-		
Capital Cost	\$28,016		
- Equipment:	\$26,000		
- Installation:	\$2,016		
Maintenance Cost:	\$1,212		
- Labor: - Spare Parts;	\$432 \$780		
- Spare Paris.	\$780		
Hours per Trip:	2 5	12	7 2
Trips per Day:	5	1	2
Waste Generation Data	•		
Waste Generated:	13.47	16.16	18.86
Flush Fluid Generated:	14.55	17.46	20.37
Capacity Adjustment:	7.01	8.41	9.81
Total Capacity Required per Day:	35.03	42.03	49.04
Pumpout Labor Cost:	\$0.1	\$0.2	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.3
Days Operated per Year:	255	255	255
Cléan-out Cycles per Year:	255	255	255
Waste Disposal Cost per Year:	\$122	\$146	\$170
Maximum Continuous Hours of Service:	67.1	67.1	67.1
Total Operating Cost per Service Hour:	\$1.95	\$1.63	\$1.41
- Trip Related:	\$1.47	\$1.24	\$1.07
- Non-Trip Related:	\$0.47	\$0.40	\$0.34
·		•	,
Total per-Car Operating Cost per Year:	\$4,973	\$5,005	\$5,037
Total Fleet Operating Ccst per Year:	\$104,442	\$105,110	\$105,777
Total Fleet Capital Cost:	\$588,336		

Favorable			Unfavorable		
\$28,016 \$26,000 \$2,016			\$28,016 \$26,000 \$2,016		
\$548 \$288 \$260			\$1,876 \$576 \$1,300		
2 5	12 1	7 2	2 5	12 1	7 2
13.47	16.16	18.86	13.47	16.16	18.86
11.34	13.61	15.88	18.90	22.68	26.46
6.20	7.44	8.68	8.09	9.71	11.33
31.01	37.22	43.42	40.46	48.56	56.65
\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.3
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.3	\$14.3	\$14.3	\$14.4
219 219	219 219	219 219	292 292	292 292	292 292
\$92	\$111	\$129	\$161	\$193	\$225
75.8	75.8	75.8	58.1	58.1	58.1
\$1.71	\$1.44	\$1.24	\$2.13	\$1.78	\$1.54
\$1.46	\$1.23	\$1.06	\$1.48	\$1.25	\$1.08
\$0.25	\$0.21	\$0.18	\$0.64	\$0.54	\$0.46
\$3,753	\$3,777	\$3,800	\$6,209	\$6,252	\$6,295
\$78,815	\$79,307	\$79,800	\$130,391	\$131,297	\$132,204
\$588,336	r		\$588,336		

Car Type: Toilet Type: Turbo Cafe Modified Vacuum

Manufacturer:

Number of Passengers:

52

Number of Toilets:

1

Total Tank Capacity (gals):

235.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$25,228 \$23,500 \$1,728		
Maintenance Cost: - Labor: - Spare Parts:	\$921 \$216 \$705		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated;	9.73	11.67	13.62
Flush Fluid Generated:	10.51	12.61	14.71
Capacity Adjustment:	5.06	6.07	7.08
Total Capacity Required per Day:	25,30	30.36	35.42
Pumpout Labor Cost:	\$0.1	<b>\$0.1</b>	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.2	\$8.2	\$8.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$88	\$105	\$123
Maximum Continuous Hours of Service:	92.9	92.9	92.9
Total Operating Cost per Service Hour:	\$1.22	\$1.02	\$0.88
- Trip Related:	\$0.85	\$0.72	\$0.62
- Non-Trip Related:	\$0.36	\$0.30	\$0.26
Total per-Car Operating Cost per Year:	\$3,105	\$3,128	\$3,151
Total Fleet Cperating Cost per Year:	\$9,316	\$9,385	\$9,454
Total Fleet Capital Cost:	\$75,684		

Favorable			Unfavorable		
\$25,228 \$23,500 \$1,728			\$25,228 \$23,500 \$1,728		
\$379 \$144 \$235			\$1,463 \$288 \$1,175		
2 5	12 1	7 2	. 2	12 1	7 2
9.73	11.67	13.62	9.73	11.67	13.62
8.19	9.83	11.47	13.65	16.38	19.11
4.48	5.38	6.27	5.84	7.01	8.18
22.40	26.88	31.36	29.22	35.07	40.91
\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.2	\$8.2	\$8.2	\$8.2	\$8.3	\$8.3
219 219	219 219	219 219	292 292	292 292	292 292
\$67	\$80	\$93	\$116	\$139	\$162
104.9	104.9	104.9	80.4	80.4	80.4
\$1.02	\$0.86	\$0.74	\$1.36	\$1.15	\$0.99
\$0.85	\$0.71	\$0.62	\$0.86	\$0.73	\$0.63
\$0.17	\$0.14	\$0.12	\$0.50	\$0.42	\$0.36
\$2,238	\$2,254	\$2,271	\$3,984	\$4,015	\$4,046
\$6,713	\$6,763	\$6,814	\$11,952	\$12,046	\$12,139
\$75,684			\$75,684		

Car Type: Turbo Power Coach
Toilet Type: Modified Vacuum

Manufacturer:

Number of Passengers: 40
Number of Toilets: 1
Total Tank Capacity (gals): 235.0

Scenario: Expected

<del></del>		
\$25,228		
\$1,728		
\$921		
\$216		
\$705		
2	12	7 2
5	1	2
7.48	8.98	10.48
8.09	9.70	11.32
3.89	4.67	5.45
19.46	23.35	27.24
\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1
· · · · · ·	<b></b>	\$6.0
\$8.2	\$8.2	\$8.2
055	055	055
		255 255
200	200	200
\$68	\$81	\$95
120.8	120.9	120.8
		\$0.87
	• •	•
*	•	\$0.61
\$0.36	\$0.30	\$0.26
\$3,079	\$3,096	\$3,114
\$43,104	\$43,351	\$43,598
\$353,192		
	\$23,500 \$1,728 \$921 \$216 \$705 2 5 7.48 8.09 3.89 19.46 \$0.1 \$2.1 \$6.0 \$8.2 255 255 255 \$68 120.8 \$1.21 \$0.84 \$0.36 \$3,079 \$43,104	\$23,500 \$1,728 \$921 \$216 \$705 2 12 5 1 7.48 8.98 8.09 9.70 3.89 4.67 19.46 23.35 \$0.1 \$0.1 \$2.1 \$2.1 \$6.0 \$6.0 \$8.2 \$8.2 255 255 255 255 \$68 \$81 120.8 \$1.21 \$1.01 \$0.36 \$0.30 \$3,079 \$3,096 \$43,104 \$43,351

Favorable		•	Unfavorable		
\$25,228 \$23,500 \$1,728			\$25,228 \$23,500 \$1,728		
\$379 \$144 \$235			\$1,463 \$288 \$1,175		
. 2 5	12 1	7 2	2 5	12 1	7 2
7.48	8.98	10.48	7.48	8.98	10.48
6.30	7.56	8.82	10.50	12.60	14.70
3.45	4.14	4.82	4.50	5.40	6.29
17.23	20.68	24.12	22.48	26.98	31.47
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.2	\$8.2	\$8.2	\$8.2	\$8.2	\$8.2
219 219	219 219	219 219	292 292	292 292	292 292
\$51	\$62	\$72	\$89	\$107	\$125
136.4	136.4	136.4	104.5	104.5	104.5
\$1.01	\$0.85	\$0.73	\$1.35	\$1.13	\$0.98
\$0.84	\$0.70	\$0.61	\$0.85	\$0.72	\$0.62
\$0.17	\$0.14	\$0.12	\$0.50	\$0.42	\$0.36
\$2,218	\$2,231	\$2,244	\$3,948	\$3,972	\$3,996
\$31,052	\$31,234	\$31,417	\$55,274	\$55,610	\$55,945
\$353,192			\$353,192		

D2 Monogram Self-Contained Recirculating

Car Type: Coach-HEP-HLV

Scenario:

Total Fleet Capital Cost:

Toilet Type: Self-Cont'd Recirc Manufacturer:

72

72

Expected

Number of Passengers:

Number of Toilets: 4

Total Tank Capacity (gals): 54.0

Capital Cost - Equipment: - Installation:	\$14,152 \$13,000 \$1,152	·
Maintenance Cost:	\$3,846	

\$3,456 Labor: - Spare Parts: \$390

Hours per Trip: 24 48 Trips per Day:

Waste Generation Data Waste Generated: 64.66 32.33 96.98 Flush Fluid Generated: 10.00 10.00 10.00

Capacity Adjustment: 10.58 26.75 18.66 Total Capacity Required per Day: .52.91 93.32 133.73

**Pumpout Labor Cost:** \$0.1 \$0.1 \$0.1 Connect/Disconnect Labor Cost: \$8.4 \$16.8 \$25.2

Cleaning Labor Cost: \$24.0 \$24.0 \$24.0

Total Pumpout/Cleaning Cost per Day: \$32.5 \$40.9 \$49.3 Days Operated per Year: 255 255 255

Clean-out Cycles per Year: 128 85 64 Waste Disposal Cost per Year: \$119 \$140 \$150

27.8 Maximum Continuous Hours of Service: 24.5 29.1 Total Operating Cost per Service Hour: \$2.65 \$1.83 \$1.55

- Trip Related: \$1.39 \$0.89 \$0.72 - Non-Trip Related: \$1.25 \$0.94 \$0.84

Total per-Car Operating Cost per Year: \$8,117 \$7,469 \$7.145

Total Fleet Operating Cost per Year: \$170,454 \$156,853 \$150,053

\$297,192

Favorable			Unfavorable		
\$14,152 \$13,000 \$1,152			\$14,152 \$13,000 \$1,152		
\$2,434 \$2,304 \$130			\$5,258 \$4,608 \$650		
24 1	48 1	72 1	24 1	48 1	72 1
32.33	64.66	96.98	32.33	64.66	96.98
10.00	10.00	10.00	10.00	10.00	10.00
10.58	18.66	. 26.75	10.58	18.66	26.75
52.91	93.32	133.73	52.91	93.32	133.73
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$8.4	\$16.8	\$25.2	\$8.4	\$16.8	\$25.2
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$32.5	\$40.9	\$49.3	\$32.5	\$40.9	\$49.3
219 110	219 73	219 55	292 146	292 97	292 73
\$102	\$120	\$129	\$136	\$160	\$172
24.5	27.8	29.1	24.5	27.8	29.1
\$2.32	\$1.58	\$1.33	\$2.89	\$2.01	\$1.72
\$1.39	\$0.89	\$0.72	\$1.39	\$0.89	\$0.72
\$0.93	\$0.69	\$0.62	\$1.50	\$1.13	\$1.00
\$6,095	\$5,540	\$5,262	\$10,139	\$9,399	\$9,029
\$127,989	\$116,332	\$110,503	\$212,918	\$197,375	\$189,603
\$297,192			\$297,192		

Car Type: Toilet Type: Lounge-HEP-HLV Self-Cont'd Recirc

Manufacturer:

Number of Passengers: **Number of Toilets:** 

86

2

Total Tank Capacity (gals):

27.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$7,076 \$6,500 \$576		
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip: Trips per Day:	. 24 . 1	48 1	72 1
Waste Generation Data			
Waste Generated:	38.61	77.23	115.84
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	10.90	20.56	30.21
Total Capacity Required per Day:	54.52	102.79	151.05
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$12.6	\$16.8	\$25.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$24.7	\$28.9	\$37.3
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$123	\$154	\$170
Maximum Continuous Hours of Service:	11.9	12.6	12.9
Total Operating Cost per Service Hour:	\$1.69	\$1.11	\$0.97
- Trip Related:	\$1.07	\$0.64	\$0.55
- Non-Trip Related:	\$0.63	\$0.47	\$0.42
Total per-Car Operating Cost per Year:	\$5,195	\$4,534	\$4,472
Total Fleet Operating Cost per Year:	\$31,168	\$27,205	\$26,833
Total Fleet Capital Cost:	\$42,456	·	

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Favorable			Unfavorable		·
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		
\$1,217 \$1,152 \$65			\$2,629 \$2,304 \$325	٠	
24 1	48 1	. 72 1	24	48 1	72 1
38.61	77.23	115.84	38.61	77.23	115.84
5.00	5.00	5.00	5.00	5.00	5.00
10.90	20.56	30.21	10.90	20.56	30.21
54.52	102.79	151.05	54.52	102.79	151.05
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$12.6	\$16.8	\$25.2	\$12.6	\$16.8	\$25.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$24.7	\$28.9	\$37.3	\$24.7	\$28.9	\$37.3
219 110	219 73	219 55	292 146	292 97	292 73
\$105	\$132	\$146	\$140	\$176	\$194
11.9	12.6	12.9	11.9	12.6	12.9
\$1.53	\$0.99	\$0.86	\$1.82	\$1.20	\$1.05
\$1.07	\$0.64	\$0.55	\$1.07	\$0.64	\$0.55
\$0.46	\$0.35	\$0.31	\$0.75	\$0.56	\$0.50
\$4,021	\$3,455	\$3,402	\$6,368	\$5,613	\$5,542
\$24,127	\$20,731	\$20,412	\$38,208	\$33,679	\$33,254
\$42,456		3. A.	\$42,456	·	

Car Type: **Trans Dorm Coach** 

Toilet Type: Self-Cont'd Recirc

Number of Passengers: **Number of Toilets:** 

Total Tank Capacity (gals): 54.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$14,152 \$13,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$3,846 \$3,456 \$390		
Hours per Trip: Trips per Day:	24 1	. 48 1	72 1
Waste Generation Data			
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	10.00	10.00	10.00
Capacity Adjustment:	6.99	11.48	15.97
Total Capacity Required per Day:	34.95	57.40	79.85
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$8.4	\$16.8	\$16.8
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:	\$32.5	\$40.9	\$40.9
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$79	\$86	\$90
Maximum Continuous Hours of Service:	37.1	45.2	48.7
Total Operating Cost per Service Hour:	\$2.63	\$1.81	\$1.42
- Trip Related:	\$1.38	\$0.87	\$0.59
- Non-Trip Related:	\$1.25	\$0.94	\$0.84
Total per-Car Operating Cost per Year:	\$8,076	\$7,415	\$6,548
Total Fleet Operating Comper Year:	\$290,752	\$266,953	\$235,73?
Total Fleet Capital Cost:	\$509,472		

40

4

Manufacturer:

Favorable			Unfavorable	· ·	
\$14,152 \$13,000 \$1,152	·		\$14,152 \$13,000 \$1,152		
\$2,434 \$2,304 \$130			\$5,258 \$4,608 \$650		
24	48 1	72 1	24	48 1	72 1
·	·	. 1		·	·
17.96	35.92	53.88	17.96	35.92	53.88
10.00	10.00	10.00	10.00	10.00	10.00
6.99	11.48	15.97	6.99	11.48	15.97
34.95	57.40	79.85	34.95	57.40	.79.85
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$8.4	\$16.8	\$16.8	\$8.4	\$16.8	\$16.8
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$32.5	\$40.9	\$40.9	\$32.5	\$40.9	. \$40.9
219 110	219 73	219 55	292 146	292 97	292 73
\$67	\$74	\$77	\$90	\$98	\$103
37.1	45.2	48.7	37.1	45.2	48.7
\$2.31	\$1.57	\$1.21	\$2.88	\$2.00	\$1.59
\$1.38	\$0.87	\$0.59	\$1.38	\$0.87	\$0.59
\$0.93	\$0.69	\$0.62	\$1.50	\$1.13	\$1.00
\$6,060	\$5,493	\$4,750	\$10,093	\$9,337	\$8,346
\$218,164	\$197,764	\$171,008	\$363,341	\$336,141	\$300,466
\$509,472			\$509,472		

Car Type: Sleeper Super
Toilet Type: Self-Cont'd Recirc

Manufacturer:

Number of Passengers: 44

Number of Toilets: 12

Total Tank Capacity (gals): 162.0

Scenario:	Expected

	42,456 39,000		
	\$3,456		• .
- Labor: \$	11,538 10,368 \$1,170		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	19.76	39.51	59.27
Flush Fluid Generated:	30.00	30.00	30.00
Capacity Adjustment:	12.44	17.38	22.32
Total Capacity Required per Day:	62.20	86.89	111.59
Pumpout Labor Cost:	<b>\$0.3</b>	\$0.3	\$0.3
Connect/Disconnect Labor Cost:	\$25.2	\$25.2	\$25.2
Cleaning Labor Cost:	\$72.0	\$72.0	\$72.0
Total Pumpout/Cleaning Cost per Day:	\$97.5	\$97.5	\$97.5
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$140	\$130	\$125
Maximum Continuous Hours of Service:	62.5	89.5	104.5
Total Operating Cost per Service Hour:	\$7.87	\$4.89	\$3.89
- Trip Related:	\$4.11	\$2.06	\$1.38
- Non-Trip Related:	\$3.76	\$2.82	\$2.51
Total per-Car Operating Cost per Year: \$	24,133	\$19,972	\$17,891
Total Fleet Operating Cost per Year: \$1,6	41,076	\$1,358,095	\$1,216,605
Total Fleet Capital Cost: \$2,8	87,008		

Favorable		•	Unfavorable		
\$42,456			\$42,456		
\$39,000			\$39,000		
\$3,456			\$3,456		-
•			1		
\$7,302			\$15,774		ļ
\$6,912		·	\$13,824		
\$390			\$1,950		
24	40	72	24	40	70
24	48 1	12	24	48 1	72 1
•	·			•	• '
19.76	39.51	59.27	19.76	39.51	59.27
30.00	30.00	30.00	30.00	30.00	30.00
12.44	17.38	22.32	12.44	17.38	22.32
62.20	86.89	111.59	62.20	86.89	111.59
\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3
\$25.2	\$25.2	\$25.2	\$25.2	\$25.2	\$25.2
\$72.0	\$72.0	\$72.0	\$72.0	\$72.0	\$72.0
\$97.5	\$97.5	\$97.5	\$97.5	\$97.5	\$97.5
		1	1		1
219 110	219 73	219 55	292 146	292	292
110	73	55	140	97	73
\$120	\$112	\$108	\$160	\$149	\$143
ΨΙΖΟ	ΨΙΙΖ	\$100	\$100	φ14 <del>9</del>	ψ143
62.5	89.5	104.5	62.5	89.5	104.5
\$6.89	\$4.15	\$3.23	\$8.61	\$5.44	\$4.38
\$4.11	\$2.06	\$1.38	\$4.11	\$2.06	\$1.38
\$2.78	\$2.08	\$1.85	\$4.50	\$3.38	\$3.00
·	·		,	,	,
\$18,098	\$14,531	\$12,748	\$30,169	\$25,413	\$23,035
\$1,230,672	\$988,117	\$866,840	\$2,051,480	\$1,728,074	\$1,566,371
\$2,887,008			\$2,887,008		

Car Type: Bag Coach Super Toilet Type: Self-Cont'd Recirc.

t Type. , Sell-Collid necili

Manufacturer:

Number of Passengers: 78
Number of Töilets: 5
Total Tank Capacity (gals): 67.5

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$17,690 \$16,250 \$1,440		
Maintenance Cost: - Labor: - Spare Parts:	\$4,808 \$4,320 \$488		
Hours per Trip: Trips per Day:	24 1	<b>48</b> 1	72 1
Waste Generation Data			
Waste Generated:	35.02	70.04	105.07
Flush Fluid Generated:	12.50	12.50	12.50
Capacity Adjustment:	11.88	20.64	29.39
Total Capacity Required per Day:	59.40	103.18	146.96
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$10.5	\$21.0	\$31.5
Cleaning Labor Cost:	\$30.0	\$30.0	\$30.0
Total Pumpout/Cleaning Cost per Day:	\$40.6	\$51.1	\$61.6
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$134	\$155	\$165
Maximum Continuous Hours of Service:	27.3	31.4	33.1
Total Operating Cost per Service Hour:	\$3.30	\$2.28	\$1.94
- Trip Related:	\$1.74	\$1.10	\$0.89
- Non-Trip Related:	\$1.57	\$1.18	\$1.05
Total per-Car Operating Cost per Year:	\$10,131	\$9,316	\$8,909

Total Fleet Operating Cost per Year:

Year: \$10,131 \$9,316 \$8,909 ar: \$486,283 \$447,183 \$427,632

\$849,120

Total Fleet Capital Cost:

Favorable			Unfavorable		
\$17,690 \$16,250 \$1,440			\$17,690 \$16,250 \$1,440		
\$3,043 \$2,880 \$163			\$6,573 \$5,760 \$813		
24 1	48 1	72 1	24 1	48 1	72 1
35.02	70.04	105.07	35.02	70.04	105.07
12.50	12.50	12.50	12.50	12.50	12.50
11.88	20.64	29.39	11.88	20.64	29.39
59.40	103.18	146.96	59.40	103.18	146.96
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$10.5	\$21.0	\$31.5	\$10.5	\$21.0	\$31.5
\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
\$40.6	\$51.1	\$61.6	\$40.6	\$51.1	\$61.6
219 110	219 73	219 55	292 146	292 97	292 73
\$114	\$133	\$142	\$153	<b>\$177</b>	· \$189
27.3	31.4	33.1	27.3	31.4	33,1
\$2.89	\$1.97	\$1.66	\$3.61	\$2.51	\$2.14
\$1.74	\$1.10	\$0.89	\$1.74	\$1.10	\$0.89
\$1.16	\$0.87	\$0.77	\$1.88	\$1.41	\$1.25
\$7,605	\$6,907	\$6,558	\$12,656	\$11,725	\$11,260
\$365,060	\$331,545	\$314,788	\$607,507	\$562,820	\$540,477
\$849,120			\$849,120		

Car Type: Coach Super Toilet Type:

Self-Cont'd Recirc

Manufacturer:

Number of Passengers: **Number of Toilets:** 

75 6

Total Tank Capacity (gals):

Scanario:

81.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$21,228 \$19,500 \$1,728		
Maintenance Cost: - Labor: - Spare Parts:	\$5,769 \$5,184 \$585		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	33.68	67.35	101.03
Flush Fluid Generated:	15.00	15.00	15.00
Capacity Adjustment:	12.17	20.59	29.01
Total Capacity Required per Day:	60.84	102.94	145.03
Pumpout Labor Cost:	\$0.2	\$0.2	\$0.2
Connect/Disconnect Labor Cost:	\$12.6	\$25.2	\$25.2
Cleaning Labor Cost:	\$36.0	\$36.0	\$36.0
Total Pumpout/Cleaning Cost per Day:	\$48.8	\$61.4	\$61.4
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$137	\$154	\$163
Maximum Continuous Hours of Service:	32.0	37.8	40.2
Total Operating Cost per Service Hour:	\$3.96	\$2.73	\$2.14
- Trip Related:	\$2.08	\$1.32	\$0.89
- Non-Trip Related:	\$1.88	\$1.41	\$1.25
Total per-Car Operating Cost per Year:	\$12,134	\$11,148	\$9,851
Total Fleet Operating Cost per Year:	\$1,104,159	\$1,014,493	\$896,421
Total Fleet Capital Cost:	\$1,931,748	<del>-</del>	

Favorable		•	Unfavorable	•	
\$21,228			\$21,228		
\$19,500			\$19,500		į
\$1,728			\$1,728	e	
·		l			
\$3,651			\$7,887		
\$3,456			\$6,912		
\$195		ļ	\$975		
24	48	72	24	48	72
1	1	1	1	1	. 1
	•				
		Ì			. ]
33.68	67.35	101.03	33.68	67.35	101.03
15.00	15.00	15.00	15.00	15.00	15.00
12.17	20.59	29.01	12.17	20.59	29.01
60.84	102.94	145.03	60.84	102.94	145.03
			, , , ,		
\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2
\$12.6	\$25.2	\$25.2	\$12.6	\$25.2	\$25.2
\$36.0	\$36.0	\$36.0	\$36.0	\$36.0	\$36.0
\$48.8	\$61.4	\$61.4	\$48.8	\$61.4	\$61.4
Ψ-0.0	Ψ01.4	Ψ01	Ψ-0.0	ΨΟ1.Ψ	Ψ01
219	219	219	292	292	292
110	73	55	146	97	73
	-	Ì			
\$117	\$132	\$140	\$156	\$176	\$186
•	·	,			, i
32.0	37.8	40.2	32.0	37.8	40.2
\$3.47	\$2.36	\$1.81	\$4.33	\$3.00	\$2.39
\$2.08	\$1.32	\$0.89	\$2.08	\$1.32	\$0.89
\$1.39	\$1.04	\$0.93	\$2.25	\$1.69	\$1.50
•	• • • • • • • • • • • • • • • • • • • •	<b>,</b>	<b>V</b>	*****	*
\$9,106	\$8,262	\$7,150	\$15,161	\$14,035	\$12,552
. 45,.00	40,-01	\$7,150	4,5,101	ψ1 <del>1</del> 1000	\$ 12,00E
\$828,681	\$751,824	\$650,619	\$1,379,637	\$1,277,161	\$1,142,222
\$1,931,748			\$1,931,748		
41100111110			7,,00,,740		

Car Type: Horizon

Toilet Type: Self-Cont'd Recirc

Manufacturer:

Number of Passengers: Number of Toilets: 82 2

Total Tank Capacity (gals):

27.0

Scenario: Expected

Scenario.	Expected		
Capital Cost - Equipment: - Installation:	\$7,076 \$6,500 \$576		
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			`
Waste Generated:	18.41	36.82	73.64
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	5.85	10.45	19.66
Total Capacity Required per Day:	29.26	52.27	98.30
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$8.4	\$8.4	\$16.8
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$20.5	\$20.5	\$28.9
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$132	\$118	\$147
Maximum Continuous Hours of Service:	11.1	12.4	13.2
Total Operating Cost per Service Hour:	\$2.37	\$1.52	\$1.11
- Trip Related:	\$1.75	\$0.89	\$0.64
- Non-Trip Related:	\$0.63	\$0.63	\$0.47
Total per-Car Operating Cost per Year:	\$7,280	\$4,653	\$4,527
Total Fleet Operating Cost per Year:	\$749,794	\$479,261	\$466,322
Total Fleet Capital Cost:	\$728,828		

Favorable			Unfavorable	•	
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		
\$1,217 \$1,152 \$65			\$2,629 \$2,304 \$325		
12 1	24 1	48 1	12	24 1	48
18.41	36.82	73.64	18.41	36.82	73.64
5.00	5.00	5.00	5.00	5.00	5.00
5.85	10.45	19.66	5.85	10.45	19.66
29.26	52.27	98.30	29.26	52.27	98.30
\$0.1	· \$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$8.4	\$8.4	\$16.8	\$8.4	\$8.4	\$16.8
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$20.5	\$20.5	\$28.9	\$20.5	\$20.5	\$28.9
219 219	219 110	219 73	. 292 292	292 146	292 97
\$113	\$101	\$126	\$150	\$134	\$168
11,1	12.4	13.2	11.1	12.4	13.2
\$2.21	\$1.35	\$0.98	\$2.50	\$1.64	\$1.20
\$1.75	\$0.89	\$0.64	\$1.75	\$0.89	\$0.64
\$0.46	\$0.46	\$0.35	\$0.75	\$0.75	\$0.56
\$5,808	\$3,557	\$3,449	\$8,751	\$5,749	\$5,605
\$508,258	\$366,372	\$355,282	\$901,330	\$592,149	\$577,362
\$728,828	· · · · · · · · · · · · · · · · · · ·		\$728,828		,

Car Type:

Coach

Toilet Type:

Self-Cont'd Recirc

Manufacturer:

Number of Passengers: Number of Toilets: 48 2

Total Tank Capacity (gals):

27.0

Scenario:

Expected

Capital Cost - Equipment:	\$7,076 \$6,500		
- Installation:	\$576		
Maintenance Cost:	\$1,923		•
- Labor: - Spare Parts:	\$1,728 \$195		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	10.78	21.55	43.10
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	3.94	6.64	12.03
Total Capacity Required per Day:	19.72	33.19	60.13
Pumpout Labor Cost:	<b>\$0.1</b>	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$8.4	\$12.6
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$20.5	\$24.7
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
олан ол о, оло рон наши			
Waste Disposal Cost per Year:	\$89	\$75	\$90
Maximum Continuous Hours of Service:	16.4	19.5	21.6
Total Operating Cost per Service Hour:	\$2.01	\$1.50	\$1.01
- Trip Related:	\$1.38	\$0.88	\$0.54
- Non-Trip Related:	\$0.63	\$0.63	\$0.47
Total per-Car Operating Cost per Year:	\$6,164	\$4,610	\$4,112
Total Fleet Operating Cost per Year:	.\$480,757	\$359,589	\$320,774
Total Fleet Capital Cost:	\$551,928		

Favorable			Unfavorable		
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		,
\$1,217 \$1,152 \$65	·		\$2,629 \$2,304 \$325		
12 1	24 1	48	12	24 1	48
10.78	21.55	43.10	10.78	21.55	43.10
5.00	5.00	5.00	5.00	5.00	5.00
3.94	6.64	12.03	3.94	6.64	12.03
19.72	33.19	60.13	19.72	33.19	60.13
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$8.4	\$12.6	\$4.2	\$8.4	\$12.6
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$20.5	\$24.7	\$16.3	\$20.5	\$24.7
219 219	219 110	219 73	292 292	292 146	· 292 97
\$76	\$64	\$77	\$101	\$85	\$103
16.4	19.5	21.6	16.4	19.5	21.6
\$1.85	\$1.34	\$0.88	\$2.13	\$1.63	\$1.10
\$1.38	\$0.88	\$0.54	\$1.38	\$0.88	\$0.54
\$0.46	\$0.46	\$0.35	\$0.75	\$0.75	\$0.56
\$4,852	\$3,520	\$3,094	\$7,475	\$5,700	\$5,131
\$378,437	\$274,579	\$241,309	\$583,077	\$444,599	\$400,239
\$551,928			\$551,928		

Car Type: Coach (HDCP)
Toilet Type: Self-Cont'd Recirc Manufacturer:

Number of Passengers: 44
Number of Toilets: 3
Total Tank Capacity (gals): 40.5

Scenario: Expected

Capital Cost	\$10,614		
- Equipment:	\$9,750		
- Installation:	\$864		
Maintenance Cost:	\$2,885		
- Labor: - Spare Parts:	\$2,592		
- Spare Faits.	\$293		
Hours per Trip:	12	24	48
Trips per Day:	1	1	1
Waste Generation Data			
Waste Generated:	9.88	19.76	39.51
Flush Fluid Generated:	7.50	7.50	7.50
Capacity Adjustment:	4.34	6.81	11.75
Total Capacity Required per Day:	21.72	34.07	58.77
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$6.3	\$6.3	\$12.6
Cleaning Labor Cost:	\$6.3 \$18.0	\$6.3 \$18.0	•
•	•	•	\$18.0
Total Pumpout/Cleaning Cost per Day:	\$24.4	\$24.4	\$30.7
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	255	128	85
Waste Disposal Cost per Year:	\$98	\$77	\$88
Maximum Continuous Hours of Service:	22.4	28.5	33.1
Total Operating Cost per Service Hour:	\$3.00	\$1.98	\$1.37
- Trip Related:	\$2.06 <sup>°</sup>	\$1.04	\$0.66
- Non-Trip Related:	\$0.94	\$0.94	\$0.71
Total per-Car Operating Cost per Year:	<b>\$9,210</b>	\$6,075	\$5,585
- Tim ber am eksteming east bei 1991	70,210	45,070	40,000
Total Fleet Operating Cost per Year:	\$193,410	\$127,575	\$117,287
Total Fleet Capital Cost:	\$222,894		
•			

Favorable			Unfavorable		
\$10,614 \$9,750 \$864			\$10,614 \$9,750 \$864		•
\$1,826 \$1,728 \$98			\$3,944 \$3,456 \$488		
12 1	24 1	48	12 1	24 1	48 1
9.88	19.76	39.51	9.88	19.76	39.51
7.50	7.50	7.50	7.50	7.50	7.50
4.34	6.81	11.75	4.34	6.81	11.75
21.72	34.07	58.77	21.72	34.07	58.77
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
.\$6.3	\$6.3	\$12.6	\$6.3	\$6.3	\$12.6
\$18.0	\$18.0	\$18.0	\$18.0	\$18.0	\$18.0
\$24.4	\$24.4	\$30.7	\$24.4	\$24.4	\$30.7
219 219	219 110	219 73	292 292	292 146	292 97
\$84	\$66	\$76	\$112	\$88	· \$101
22.4	28.5	33.1	22.4	28.5	33.1
\$2.76	\$1.74	\$1.18	\$3.19	\$2.17	\$1.50
\$2.06	\$1.04	\$0.66	\$2.06	\$1.04	\$0.66
\$0.69	\$0.69	\$0.52	\$1.13	\$1.13	\$0.84
\$7,247	\$4,560	\$4,140	\$11,173	\$7,590	\$7,030
\$152,194	\$95,765	\$86,945	\$234,625	\$159,386	\$147,627
\$222,894			\$222,894		,

Car Type: Dome Coach
Toilet Type: Self-Cont'd Recirc

Manufacturer:

Number of Passengers: 46
Number of Toilets: 2
Total Tank Capacity (gals): 27.0

Scenario: Expected

Capital Cost - Equipment: - Installation:  Maintenance Cost: - Labor: - Spare Parts:  Hours per Trip: Trips per Day:  Waste Generation Data Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost: Total Pumpout/Cleaning Cost per Day:	\$7,076 \$6,500 \$576 \$1,923 \$1,728 \$195		
- Equipment: - Installation:  Maintenance Cost: - Labor: - Spare Parts:  Hours per Trip: Trips per Day:  Waste Generation Data Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:	\$6,500 \$576 \$1,923 \$1,728		
Maintenance Cost: - Labor: - Spare Parts:  Hours per Trip: Trips per Day:  Waste Generation Data Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:	\$1,923 \$1,728		
- Labor: - Spare Parts:  Hours per Trip: Trips per Day:  Waste Generation Data  Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:	\$1,728		
- Spare Parts:  Hours per Trip: Trips per Day:  Waste Generation Data  Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:			
Hours per Trip: Trips per Day:  Waste Generation Data Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:			
Trips per Day:  Waste Generation Data  Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:			•
Waste Generation Data Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day: Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:	12	24	48
Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day: Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:	1	1	1
Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day: Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:			
Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:	10.33	20.65	41.31
Total Capacity Required per Day:  Pumpout Labor Cost:  Connect/Disconnect Labor Cost:  Cleaning Labor Cost:	5.00	5.00	5.00
Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost:	3.83	6.41	11.58
Connect/Disconnect Labor Cost: Cleaning Labor Cost:	19.16	32.07	57.89
Connect/Disconnect Labor Cost: Cleaning Labor Cost:			
Cleaning Labor Cost:	\$0.1	\$0.1	\$0.1
<u> </u>	\$4.2	\$8.4	\$12.6
Total Pumpout/Cleaning Cost per Day:	\$12.0	\$12.0	\$12.0
	\$16.3	\$20.5	\$24.7
Days Operated per Year:	255	255	255
Cléan-out Cycles per Year:	255	128	85
Waste Disposal Cost per Year:	\$86	\$72	\$87
	*	*	<b>,</b>
Maximum Continuous Hours of Service:	16.9	20.2	22.4
Total Operating Cost per Service Hour:	\$2.01	\$1.50	\$1.01
- Trip Related:	\$1.38	\$0.88	\$0.53
- Non-Trip Related:	\$0.63	\$0.63	\$0.47
`,			
Total per-Car Operating Cost per Year:	\$6,161	\$4,608	\$4,109
Total Fleet Operating Cost per Year:	\$73,932	\$55,291	\$49,309
Total Fleet Capital Cost:	\$84,912		

Favorable		·	Unfavorable		
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		
\$1,217 \$1,152 \$65			\$2,629 \$2,304 \$325		
12 1	24 1	. 48	12 1	24 1	48
10.33	20.65	41.31	10.33	20.65	41.31
5.00	5.00	5.00	5.00	5.00	5.00
3.83	6.41	11.58	3.83	6.41	11.58
19.16	32.07	57.89	19.16	32.07	57.89
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$8.4	\$12.6	\$4.2	\$8.4	\$12.6
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$20.5	\$24.7	\$16.3	\$20.5	\$24.7
219 219	219 110	219 73	292 292	292 146	292 97
\$74	\$62	\$74	\$98	\$82	\$99
16.9	20.2	22.4	16.9	20.2	22.4
\$1.85	\$1.34	\$0.88	\$2.13	\$1.63	\$1.10
\$1.38	\$0.88	\$0.53	\$1.38	\$0.88	\$0.53
\$0.46	\$0.46	\$0.35	\$0.75	\$0.75	\$0.56
\$4,850	\$3,518	\$3,091	\$7,472	\$5,697	\$5,127
\$58,195	\$42,217	\$37,090	\$89,670	\$68,365	\$61,529
\$84,912	<del></del>		\$84,912	······	

**Total Fleet Capital Cost:** 

Car Type: Amlounge II Toilet Type: Self-Cont'd Recirc

Manufacturer:

Number of Passengers: **Number of Toilets:** 

2 Total Tank Capacity (gals): 27.0

Scenario:	Expected		
Capital Cost - Equipment: - installation:	\$7,076 \$6,500 \$576	<u>.</u>	
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	11.00	22.00	44.00
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	4.00	6.75	12.25
Total Capacity Required per Day:	20.00	33.75	61.25
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$8.4	\$12.6
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$20.5	\$24.7
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$90	\$76	\$92
Maximum Continuous Hours of Service:	16.2	. 19.2	21.2
Total Operating Cost per Service Hour:	\$2.01	\$1.50	\$1.01
- Trip Related:	\$1.38	\$0.88	\$0.54
- Non-Trip Related:	్థ \$0.63	\$0.63	\$0.47
Total per-Car Operating Cost per Year:	\$6,165	\$4,611	\$4,11 <b>4</b>
Total Fleet Operating Cost per Year:	\$154,120	\$115,284	\$102,854

\$176,900

49

Favorable	·		Unfavorable		
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576	<u></u>	
\$1,217 \$1,152 \$65			\$2,629 \$2,304 \$325	,	
12 1	24 1	48	12 1	24 1	48
11.00	22.00	44.00	11.00	22.00	44.00
5.00	5.00	5.00	5.00	5.00	5.00
4.00	6.75	12.25	4.00	6.75	12.25
20.00	33.75	61.25	20.00	33.75	61.25
\$0.1	\$0.1	\$0.1	\$0.1	\$Ó.1	\$0.1
\$4.2	\$8.4	\$12.6	\$4.2	\$8.4	\$12.6
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$20.5	\$24.7	\$16.3	\$20.5	\$24.7
219 219	219 110	219 73	292 292	292 146	292 97
\$77	\$65	\$79	\$103	\$87	\$105
16.2	19.2	21.2	16.2	19.2	21.2
\$1.85	\$1.34	\$0.88	\$2.13	\$1.63	\$1.10
\$1.38	\$0.88	\$0.54	\$1.38	\$0.88	\$0.54
\$0.46	\$0.46	\$0.35	\$0.75	\$0.75	\$0.56
\$4,853	<b>\$3,521</b>	\$3,095	\$7,477	\$5,701	\$5,133
\$121,321	\$88,033	\$77,379	\$186,920	\$142,536	\$128,330
\$176,900			\$176,900		

Car Type:

Sleeper 10-6

Toilet Type:

Self-Cont'd Recirc

Manufacturer:

Number of Passengers: Number of Toilets: 22 17

Total Tank Capacity (gals):

229.5

Scenario:

**Expected** 

Scenario:	Expected		
Capital Cost - Equipment:	\$60,146 \$55,250		
- Installation:	\$4,896		
Maintenance Cost:	\$16,346		
- Labor: - Spare Parts:	\$14,688 \$1,658		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	4.94	9.88	19.76
Flush Fluid Generated:	42.50	42.50	42.50
Capacity Adjustment:	11.86	13.09	15.56
Total Capacity Required per Day:	59.30	65.47	77.82
Pumpout Labor Cost:	\$0.4	\$0.4	\$0.4
Connect/Disconnect Labor Cost:	\$35.7	\$35.7	\$35.7
Cleaning Labor Cost:	\$102.0	\$102.0	\$102.0
Total Pumpout/Cleaning Cost per Day:	\$138 <u>.</u> 1	\$138.1	\$138.1
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
	_	-	
Waste Disposal Cost per Year:	<b>ა \$267</b>	\$147	\$117
Maximum Continuous Hours of Service:	46.4	84.1	141.6
Total Operating Cost per Service Hour:	\$16.93	\$11.13	\$6.90
- Trip Related:	\$11.60	\$5.80	\$2.91
- Non-Trip Related:	\$5.33	\$5.33	\$4.00
Total per-Car Operating Cost per Year:	\$51,903	\$34,138	\$28,226
Total Fleet Operating Cost per Year:	\$4,256,054	\$2,799,331	\$2,314,515
Total Fleet Capital Cost:	\$4,931,972		

Favorable			Unfavorable		•
\$60,146 \$55,250 \$4,896			\$60,146 \$55,250 \$4,896		
\$10,345 \$9,792 \$553		·	\$22,347 \$19,584 \$2,763		
12 1	24 1	48 1	12	24 1	48 1
4.94	9.88	19.76	4.94	9.88	19.76
42.50	42.50	42.50	42.50	42.50	42.50
11.86	13.09	15.56	11.86	13.09	15.56
59.30	65.47	77.82	59.30	65.47	77.82
\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4
\$35.7	\$35.7	\$35.7	\$35.7	\$35.7	\$35.7
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$138.1	\$138.1	\$138.1	\$138.1	\$138.1	\$138.1
219 219	219 110	219 73	292 292	292 146	292 97
\$229	\$126	\$100	\$305	\$168	\$133
46.4	84.1	141.6	46.4	84.1	141.6
\$15.53	\$9.74	\$5.86	\$17.97	\$12.18	\$7.69
\$11.60	\$5.80	\$2.91	\$11.60	\$5.80	\$2.91
\$3.94	\$3.94	\$2.95	\$6.38	\$6.38	\$4.78
\$40,822	\$25,595	\$20,528	\$62,984	\$42,681	\$35,924
\$3,347,440	\$2,098,820	\$1,683,264	\$5,164,667	\$3,499,841	\$2,945,766
\$4,931,972			\$4,931,972		

Car Type: Amcoach II
Toilet Type: Self-Cont'd Recirc Manufacturer

Number of Passengers: 59
Number of Toilets: 2

Total Tank Capacity (gals): 27.0

Scenario:		Expected
	•	

•			
Capital Cost	\$7,076	•	
- Equipment:	\$6,500		
- Installation:	\$576		
Maintenance Cost:	\$1,923		
- Labor:	\$1,728		
- Spare Parts:	<b>\$195</b>		•
Hours per Trip:	24	48	72
Trips per Day:	<b>1</b>	1	1
Waste Generation Data			
Waste Generated:	26.49	52.98	79.47
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	7.87	14.50	21.12
Total Capacity Required per Day:	39.36	72.48	105.59
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$8.4	\$12.6	\$16.8
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$20.5	\$24.7	\$28.9
Days Operated per Year:	255	255	255
Cléan-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$89	\$109	\$119
Mariana Cardina and Danie	40.5	47.0	40.4
Maximum Continuous Hours of Service:	16.5	17.9	18.4
Total Operating Cost per Service Hour:	\$1.51	\$1.01	\$0.84
- Trip Related:	\$0.88	\$0.54	\$0.43
- Non-Trip Related:	\$0.63	\$0.47	\$0.42
Total per-Car Operating Cost per Year:	\$4,624	\$4,131	\$3,884
Total Fleet Operating Cost per Year:	\$550,255	\$491,589	\$462,255
Total Fleet Capital Cost:	\$842,044	•	

# : Monogram

Favorable			Unfavorable		
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		
\$1,217 \$1,152 \$65			\$2,629 \$2,304 \$325		
24 1	48 1	72 1	24 1	<b>48</b> 1	72 1
26.49	52.98	79.47	26.49	52.98	79.47
5.00	5.00	5.00	5.00	5.00	5.00
7.87	14.50	21.12	7.87	14.50	21.12
39.36	72.48	105.59	39.36	72.48 ;	105.59
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$8.4	\$12.6	\$16.8	\$8.4	\$12.6	\$16.8
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$20.5	\$24.7	\$28.9	\$20.5	\$24.7	\$28.9
219 110	219 73	219 55	292 146	292 97	292 73
\$76	\$93	\$102	\$101	\$124	\$136
16.5	17.9	18.4	16.5	17.9	18.4
\$1.34	\$0.89	\$0.74	\$1.63	\$1.10	\$0.93
\$0.88	\$0.54	\$0.43	\$0.88	\$0.54	\$0.43
\$0.46	\$0.35	\$0.31	\$0.75	\$0.56	\$0.50
\$3,532	\$3,110	\$2,898	\$5,716	\$5,152	\$4,871
\$420,324	\$370,039	\$344,896	\$690,186	\$613,139	\$579,615
\$842,044			\$842,044		

Car Type: Slumbercoach 24-8
Toilet Type: Self-Cont'd Recirc

Self-Cont'd Recirc Manufacturer:

Number of Passengers: 40

Number of Toilets: 32

Total Tank Capacity (gals): 432.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$113,216 \$104,000 \$9,216		
Maintenance Cost: - Labor: - Spare Parts:	\$30,768 \$27,648 \$3,120		·
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	80.00	80.00	80.00
Capacity Adjustment:	24.49	28.98	33.47
Total Capacity Required per Day:	122.45	144.90	167.35
Pumpout Labor Cost:	\$0.8	\$0.8	\$0.8
Connect/Disconnect Labor Cost:	\$67.2	\$67.2	\$67.2
Cleaning Labor Cost:	\$192.0	\$192.0	\$192.0
Total Pumpout/Cleaning Cost per Day:	\$260.0	\$260.0	\$260.0
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$275	\$217	\$188
Maximum Continuous Hours of Service:	84.7	143.1	185.9
Total Operating Cost per Service Hour:	\$20.96	\$13.00	\$10.34
- Trip Related:	\$10.92	\$5.47	\$3.65
- Non-Trip Related:	\$10.04	\$7.53	\$6.69
Total per-Car Operating Cost per Year:	\$64,258	\$53,129	\$47,564
Total Fleet Operating Cost per Year:	\$1,028,133	\$850,056	\$761,018
Total Fleet Capital Cost:	\$1,811,456		<u>.</u> .

Favorable			Unfavorable		
\$113,216	·· · · · · · · · · · · · · · · · · ·		\$113,216	······	, ,,,,
\$104,000 \$9,216			\$104,000 \$9,216		
\$19,472 \$18,432 \$1,040			\$42,064 \$36,864 \$5,200	-	
24 1	<b>48</b> 1	72 1	24 1	48 1	72 1
		,		:	
17.96	35.92	53.88	17.96	35.92	53.88
80.00	80.00	80.00	80.00	80.00	80.00
24.49	28.98	33.47	24.49	28.98	33.47
122.45	144.90	167.35	122.45	144.90	167.35
\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8
\$67.2	\$67.2	\$67.2	\$67.2	\$67.2	\$67.2
\$192.0	\$192.0	\$192.0	\$192.0	\$192.0	\$192.0
\$260.0	\$260.0	\$260.0	\$260.0	\$260.0	\$260.0
219 110	219 73	219 55	292 146	292 97	292 73
\$236	\$186	\$161	\$315	\$248	\$215
84.7	143.1	185.9	84.7	143.1	185.9
\$18.33	\$11.03	\$8.59	\$22.93	\$14.47	\$11.66
\$10.92	\$5.47	\$3.65	\$10.92	\$5.47	\$3.65
\$7.41	\$5.56	\$4.94	\$12.00	\$9.00	\$8.00
\$48,178	\$38,638	\$33,868	\$80,339	\$67,619	\$61,259
\$770,848	\$618,211	\$541,892	\$1,285,418	\$1,081,902	\$980,144
\$1,811,456			\$1,811,456		

Car Type: Viewliner-Sleeper
Toilet Type: Self-Cont'd Recirc

Manufacturer:

Number of Passengers: 34 Number of Toilets: 17

Total Tank Capacity (gals): 229.5

Scenario:	⊨xp	ected

Capital Cost	\$60,146		· · · · · · · · · · · · · · · · · · ·
- Equipment:	\$55,250		
- Installation:	\$4,896		
Maintenance Cost:	\$16,346		
- Labor:	\$14,688		
- Spare Parts:	\$1,658		
Hours per Trip:	ల 24	48	72
Trips per Day:	i	1	7
		•	
Waste Generation Data			
Waste Generated:	15.27	30.53	45.80
Flush Fluid Generated:	42.50	42.50	42.50
Capacity Adjustment:	14.44	18.26	22.07
Total Capacity Required per Day:	72.21	91.29	110.37
Pumpout Labor Cost:	\$0.4	\$0.4	\$0.4
Connect/Disconnect Labor Cost:	\$35.7	\$35.7	\$35.7
Cleaning Labor Cost:	\$102.0	\$102.0	\$102.0
Total Pumpout/Cleaning Cost per Day:	\$138.1	\$138.1	\$138.1
, , ,	·		·
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	128	. 85	64
Wests Disposal Cost and Vocas	6460	<b>#407</b>	.0404
Waste Disposal Cost per Year:	\$162	\$137	\$124
Maximum Continuous Hours of Service:	76.3	120.7	149.7
Total Operating Cost per Service Hour:	76.3 \$11.14	\$6.91	\$5.50
. ,	•	*	•
- Trip Related:	\$5.81	\$2.91	\$1.95
- Non-Trip Related:	\$5.33	\$4.00	\$3.55
T-1-1 0 - 0 1 0	404450	400.040	407.000
Total per-Car Operating Cost per Year:	\$34,153	\$28,246	\$25,292
Total Fleet Operating Cost per Year:	\$68,307	<b>\$56,492</b>	\$50,585
Total Floor Operating Cost per Tear.	φ <del>ιο,</del> 307	Ç30,48Z	φυ <b>υ,υο</b> υ
Total Fleet Capital Cost:	\$120,292		
<del></del>	4 LONGE		

Favorable			Unfavorable		
\$60,146			\$60,146		
\$55,250		1	\$55,250		ł
\$4,896			\$4,896		
<b>A.</b>					ļ
\$10,345 \$9,792			\$22,347		
\$5,792 \$553			\$19,584 \$2,763		:
•	•		<b>, , , , , , , , , , , , , , , , , , , </b>		
24	48	72	24	48	72
1	1	1	1	1	1
15.27	30.53	45.80	15.27	30.53	45.80
42.50	42.50	42.50	42.50	42.50	42.50
14.44	18.26	22.07	14.44	18.26	22.07
72.21	91.29	110.37	72.21	91.29	110.37
\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4
\$35.7	\$35.7	\$35.7	\$35.7	\$35.7	\$35.7
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$138.1	\$138.1	\$138.1	\$138.1	\$138.1	\$138.1
219 110	219 73	219   55	292 146	292 97	292   73
110	7.0	00	170	37	, ,
\$139	\$117	\$106	\$186	\$156	\$142
*	****	7,55	1 7.00	Ψ.50	4
76.3	120.7	149.7	76.3	120.7	149.7
\$9.74	\$5.86	\$4.57	\$12.19	\$7.69	\$6.20
\$5.81	\$2.91	\$1.95	\$5.81	\$2.91	\$1.95
\$3.94	\$2.95	\$2.62	\$6.38	\$4.78	\$4.25
					· ·
\$25,608	\$20,545	\$18,013	\$42,698	\$35,947	\$32,571
\$51,217	\$41,090	\$36,026	\$85,397	\$71,894	\$65,143
\$120,292			\$120,292		

Car Type: Toilet Type: Amcafe

Self-Cont'd Recirc

Manufacturer:

Number of Passengers: Number of Toilets:

53

Number of Tollets.

2

Total Tank Capacity (gals):

27.0

Scenario:		Expected
	•	
Capital Cost		\$7,076

,			
Capital Cost - Equipment: - Installation:	\$7,076 ల \$6,500 \$576	-	
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated:	15.86	15.86	23.80
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	5.22	5.22	7.20
Total Capacity Required per Day:	26.08	26.08	36.00
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$20.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$117	\$117	\$81
Maximum Continuous Hours of Service:	16.6	16.6	18.0
Total Operating Cost per Service Hour:	\$1.51	\$1.51	\$1.51
- Trip Related:	\$1.04	\$1.04	\$0.88
- Non-Trip Related:	\$0.47	\$0.47	\$0.63
Total per-Car Operating Cost per Year:	\$6,192	\$6,192	\$4,616
Total Fleet Operating Cost per Year:	\$278,647	\$278,647	\$207,739
Total Fleet Capital Cost:	\$318,420		

Favorable			Unfavorable	<b>V</b>	
\$7,076			\$7,076		
\$6,500			\$6,500		
\$576		i	\$576		
\$1,217			\$2,629		
\$1,152		. [	\$2,304		
\$65			\$325		
•					
. 8 2	16 1	24	8 2	16 1	24
<del>-</del>		·	· -	·	Ť
•		i			-
15.86	15.86	23.80	15.86	15.86	23.80
5.00	5.00	5.00	5.00	5.00	5.00
5.22	5.22	7.20	5.22	5.22	7.20
26.08	26.08	36.00	26.08	26.08	36.00
			İ		
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$8.4	\$4.2	\$4.2	\$8.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$20.5	\$16.3	\$16.3	\$20.5
010	040			000	000
219 219	219 219	219 110	292 292	292 292	292 146
\$101	\$101.	\$69	\$134	\$134	\$92
·	•		• •	•	
16.6	16.6	18.0	16.6	16.6	18.0
. \$1.39	\$1.39	\$1.34	\$1.61	\$1.61	\$1.63
\$1.04	\$1.04	\$0.88	\$1.04	\$1.04	\$0.88
\$0.35	\$0.35	\$0.46	\$0.56	\$0.56	\$0.75
			ł	•	
\$4,876	\$4,876	\$3,526	\$7,508	\$7,508	\$5,707
\$219,432	\$219,432	\$158,654	\$337,862	\$337,862	\$256,824
\$318,420			\$318,420		

Car Type:

Amcoach

Toilet Type:

Self-Cont'd Recirc

Manufacturer:

Number of Passengers: Number of Toilets:

84

2

Total Tank Capacity (gals):

27.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$7,076 \$6,500 \$576		
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated;	25.14	25.14	37.72
Flush Fluid Generated:	5.00	• 5.00	5.00
Capacity Adjustment:	7.54	7.54	10.68
Total Capacity Required per Day:	37.68	37.68	53.40
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$8.4	\$8.4	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$20.5	\$20.5	\$20.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$169	\$169	\$120
Maximum Continuous Hours of Service:	11.5	11.5	12.1
Total Operating Cost per Service Hour:	\$1.79	\$1.79	\$1.52
- Trip Related:	\$1.32	\$1.32	\$0.89
- Non-Trip Related:	\$0.47	\$0.47	\$0.63
Total per-Car Operating Cost per Year:	\$7,317	\$7,317	\$4,656
Total Fleet Operating Cost per Year:	\$1,946,432	\$1,946,432	\$1,238,374
Total Fleet Capital Cost:	\$1,882,216		

Favorable			Unfavorable		
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		
\$1,217 \$1,152 \$65	•		\$2,629 \$2,304 \$325		
8 2	16 1	24	8 2	16 1	24 1
25.14	25.14	37.72	25.14	25.14	37.72
5.00	5.00	5.00	5.00	5.00	5.00
7.54	7.54	10.68	7.54	7.54	10.68
37.68	37.68	53.40	37.68	37.68	53.40
0.,00	07.00	00.40	07.00	37.00	33,40
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$8.4	\$8.4	\$8.4	\$8.4	\$8.4	\$8.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$20.5	\$20.5	. \$20.5	\$20.5	\$20.5	\$20.5
219 219	219 219	219 110	292 292	292 292	292 146
\$145	\$145	\$103	. \$194	\$194	\$137
11.5	11.5	12.1	11.5	11.5	12.1
\$1.67	\$1.67	\$1.35	\$1.88	\$1.88	<b>\$1.64</b>
\$1.32	\$1.32	\$0.89	\$1.32	\$1.32	\$0.89
\$0.35	\$0.35	\$0.46	\$0.56	\$0.56	\$0.75
<b>\$5,84</b> 1	<b>\$5,841</b>	\$3,559	\$8,794	\$8,794	\$5,752
\$1,552,648	\$1,553,648	\$946,741	\$2,339,216	\$2,339,216	\$1,530,006
\$1,882,216			\$1,882,216		

Car Type:

Amclub

Toilet Type:

Self-Cont'd Recirc

Manufacturer:

Number of Passengers:

41 2

Number of Toilets: Total Tank Capacity (gals):

27.0

Scenario:

**Expected** 

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$7,076 \$6,500 \$576		
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip:	8 2	, 16 1	24
Trips per Day:	2	1	ı
Waste Generation Data			'
Waste Generated:	12.27	12.27	18.41
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	4.32	4.32	5.85
Total Capacity Required per Day:	21.59	21.59	29.26
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$20.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$97	\$97	\$66
Maximum Continuous Hours of Service:	20.0	20.0	22.1
Total Operating Cost per Service Hour:	\$1.51	\$1.51	\$1.50
- Trip Related:	\$1.04	\$1.04	\$0.87
- Non-Trip Related:	\$0.47	\$0.47	\$0.63
Total per-Car Operating Cost per Year:	\$6,172	\$6,172	\$4,601
Total Fleet Operating Cost pc: Year:	\$148,127	\$148,127	\$110,431
Total Fleet Capital Cost:	\$169,824		je.

D-4/

Favorable			Unfavorable		
\$7,076 \$6,500			\$7,076 \$6,500	. <u> </u>	
\$576			\$6,500 \$576		
\$1,217 \$1,152 \$65			\$2,629 \$2,304 \$325	٥	
8 2	16 1	24	8 2	16 1	24
12.27	12.27	18.41	12.27	12.27	18.41
5.00	5.00	5.00	5.00	5.00	5.00
4.32	4.32	5.85	4.32	4.32	5.85
21.59	21.59	29.26	21.59	21.59	29.26
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$8.4	\$4.2	\$4.2	\$8.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$20.5	\$16.3	\$16.3	\$20.5
219 219	219 219	219 110	292 292	292 292	292 5 146
\$83	\$83	\$56	\$111	\$111	\$75
20.0	20.0	22.1	20.0	20.0	22.1
· <b>\$1.39</b>	\$1.39	\$1.34	\$1.60	\$1.60	\$1.62
\$1.04	\$1.04	\$0.87	\$1.04	\$1.04	\$0.87
\$0.35	\$0.35	\$0.46	\$0.56	\$0.56	\$0.75
\$4,859	\$4,859	\$3,513	\$7,485	\$7,485	\$5,690
\$116,615	\$116,615	\$84,304	\$179,639	\$179,639	\$136,557
\$169,824			\$169,824		

Car Type:

Met-Srvc Dinette

Toilet Type:

Self-Cont'd Recirc

Manufacturer:

Number of Passengers:

23 2

Number of Toilets: Total Tank Capacity (gals):

27.0

Scenario:

**Expected** 

	•		-
Capital Cost - Equipment:	\$7,076 \$6,500	<u> </u>	
- Installation:	\$576		ĺ
Maintenance Cost: - Labor:	\$1,923 \$1,728		
- Spare Parts:	\$195		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	2.33	2.54	2.76
Total Capacity Required per Day:	11.63	12.70	13.78
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$16.3
Days Operated per Year: Clean-out Cydes per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$52	\$57	\$62
Tradio Biopoda Godi poi Todi.	۳۵۶	ΨΟΙ	Ψ02
Maximum Continuous Hours of Service:	23.2	25.5	27.4
Total Operating Cost per Service Hour:	\$2.40	\$2.00	\$1.72
- Trip Related:	\$1.65	\$1.37	\$1.18
- Non-Trip Related:	\$0.75	\$0.63	\$0.54
Total per-Car Operating Cost per Year:	\$6,127	\$6,132	\$6,137
Total Fleet Operating Cost per Year:	\$79,653	\$79,716	\$79,779
Total Fleet Capital Cost:	\$91,988		

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Favorable	•		Unfavorable		
\$7,076 \$6,500 \$576	<del></del>		\$7,076 \$6,500 \$576	<u></u>	
\$1,217 \$1,152 \$65			\$2,629 \$2,304 \$325		
2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
5.00	5.00	5.00	5.00	5.00	5.00
2.33	2.54	2.76	2.33	2.54	2.76
11.63	12.70	13.78	11.63	12.70	13.78
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$16.3	. \$16.3	\$16.3	\$16.3
219 219	219 219	219 219	292 292	292 292	292 292
\$45	\$49	\$53	\$60	\$65	\$71
23.2	25.5	27.4	23.2	25.5	27.4
\$2.20	\$1.84	\$1.57	\$2.55	\$2.12	\$1.82
\$1.65	\$1.37	\$1.18	\$1.65	\$1.37	\$1.18
\$0.56	\$0.46	\$0.40	\$0.90	\$0.75	\$0.64
\$4,821	\$4,825	\$4,829	\$7,434	\$7,439	\$7,445
\$62,667	\$62,721	\$62,775	\$96,639	\$96,711	\$96,783
\$91,988			\$91,988		,

Car Type: Met-Srvc Coach
Toilet Type: Self-Cont'd Recirc

Manufacturer:

Number of Passengers: 60
Number of Toilets: 2
Total Tank Capacity (gals): 27.0

Scenario: Expected

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$7,076 \$6,500 \$576		
- Historiani.	ΨΟΙΟ		
Maintenance Cost: - Labor:	\$1,923 \$1,728		
- Spare Parts:	\$195		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	11.23	13.47	15.72
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	4.06	4.62	5.18
Total Capacity Required per Day:	20.28	23.09	25.89
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$16.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$91	\$104	\$116
Maximum Continuous Hours of Service:	13.3	14.0	14.6
Total Operating Cost per Service Hour:	\$2.41	\$2.02	\$1.73
- Trip Related:	\$1.66	\$1.39	\$1.19
- Non-Trip Related:	\$0.75	\$0.63	\$0.54
Total per-Car Operating Cost per Year:	\$6,166	\$6,179	\$6,191
Total Fleet Operating Cost per Year:	\$308,304	\$303,935	\$309,566
Total Fleet Capital Cost:	\$353,800		

Favorable			Únfavorable		
\$7,076		·····	\$7,076		
\$6,500			\$6,500		
\$576			\$576		
\$1,217			\$2,629		
\$1,152 \$65			\$2,304 \$325		
2 5	12 1	7	2 5	12 1.	7
5	1	2	5	1.	2
44.00	40.47	45.70	44.00		
11.23	13.47	15.72	11.23	13.47	15.72
5.00	5.00	5.00	5.00	5.00	5.00
4.06	4.62	5.18	4.06	4.62	5.18
20.28	23.09	25.89	20.28	23.09	25.89
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$16.3	\$16.3	\$16.3	\$16.3
219	219	219	292	292	292
219	219	219	292	292	292
\$78	\$89	\$100	\$104	\$119	\$133
13.3	14.0	14.6	13.3	14.0	14.6
\$2.22	\$1.85	\$1.59	\$2.56	\$2.14	\$1.84
\$1.66	\$1.39	\$1.19	\$1.66	\$1.39	\$1.19
\$0.56	\$0.46	\$0.40	\$0.90	\$0.75	\$0.64
\$4,854	\$4,865	\$4,876	\$7,478	\$7,493	\$7,507
\$242,696	\$243,237	\$243,778	\$373,911	\$374,633	\$375,354
\$353,800			\$353,800		

Car Type: Met-Srvc Club '
Toilet Type: Self-Cont'd Recirc Manufacturer:

33

Number of Passengers:

Number of Toilets: 2 Total Tank Capacity (gals): 27.0

Scenario: Expected

	•		
Capital Cost	\$7,076		7
- Equipment:	\$6,500		
- Installation:	\$576		
Maintenance Cost:	\$1,923		
- Labor: - Spare Parts:	\$1,728 \$195		
- Opale i aits.	<b>Φ19</b> 5		
Hours per Trip:	2	12	7
Trips per Day:	2 5	1	2
Waste Generation Data			
Waste Generated:	6.17	7.41	8.64
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	2.79	3.10	3.41
Total Capacity Required per Day:	13.97	15.51	17.05
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$16.3
Days Operated per Year:	255 255	255	255
Clean-out Cycles per Year:	255	255	255
Wasta Disposal Cost nor Voca	¢eo.	<del>ቀ</del> ማለ	A-7-7
Waste Disposal Cost per Year:	\$63	\$70	\$77
Maximum Continuous Hours of Service:	40.0	00.0	20.0
	19.3	20.9	22.2
Total Operating Cost per Service Hour:	\$2.40	\$2.00	\$1.72
- Trip Related:	\$1.65	\$1.38	\$1.18
- Non-Trip Related:	\$0.75	\$0.63	\$0.54
<b>_</b>			
Total per-Car Operating Cost per Year:	\$6,138	\$6,145	\$6,152
Total Fleet Operating Cost per Year:	\$79,790	\$79,880	\$79,970
Total Fleet Capital Cost:	\$91,988		

Favorable			Unfavorable		e.
\$7,076	<del></del>		\$7,076		
\$6,500		1	\$6.500		
\$576			\$576		
			·	=	
\$1,217			\$2,629		
\$1,152			\$2,304		٥
\$65		1	\$325		1
2 5	12	7 2	2 5	12	7
5	1	2	5	12 1	7 2
	•	-	ĺ		
6.17	7.41	8.64	6.17	7.41	8.64
5.00	5.00	5.00	5.00	5.00	5.00
2.79	3.10	3.41	2.79	3.10	
13.97	15.51	17.05	13.97		3.41
13.97	15.51	17.05	13.97	15.51	17.05
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$16.3	\$16.3	\$16.3	\$16.3
	•		,	• • • • • • • • • • • • • • • • • • • •	, , , , ,
219	219	219	292	292	292
219	219	219	292	292	292
\$54	\$60	\$66	\$72	\$80	\$88
	400	400	\ \frac{\psi_1^2}{2}	ΨΟΟ	Ψοσ
19.3	20.9	22.2	19.3	20.9	22.2
\$2.21	\$1.84	\$1.58	\$2.55	\$2.13	\$1.83
\$1.65	\$1.38	\$1.18	\$1.65	\$1.38	\$1.18
\$0.56	\$0.46	\$0.40	\$0.90	\$0.75	\$0.64
44.005	44.000				
\$4,830	\$4,836	\$4,841	\$7,446	\$7,454	\$7,462
\$62,785	\$62,862	\$62,939	\$96,795	\$96,898	\$97,001
\$91,988			\$91,988		

Car Type: Amdinette
Toilet Type: Self-Cont'd Recirc

Number of Passengers: 23

Number of Toilets: 2

Total Tank Capacity (gals): 27.0

Scenario: Expected

Manufacturer:

Capital Cost	Scenario:	Expected		
Maintenance Cost:       \$1,923         - Labor:       \$1,728         - Spare Parts:       \$195         Hours per Trip:       2       12       7         Trips per Day:       5       1       2         Waste Generation Data       4.30       5.16       6.02         Waste Generated:       5.00       5.00       5.00         Flush Fluid Generated:       5.00       5.00       5.00         Capacity Adjustment:       2.33       2.54       2.76         Total Capacity Required per Day:       11.63       12.70       13.78         Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$1.0       \$0.1       \$0.1         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       \$52       \$25       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       \$2.40       \$2.00       \$1.72         Trip Related:       \$0.75 <td>- Equipment:</td> <td>\$6,500</td> <td></td> <td></td>	- Equipment:	\$6,500		
Labor: - Spare Parts:   \$1,728    \$195	- Installation:	\$576		
Spare Parts:   \$195				
Trips per Day:       5       1       2         Waste Generation Data       4.30       5.16       6.02         Flush Fluid Generated:       5.00       5.00       5.00         Capacity Adjustment:       2.33       2.54       2.76         Total Capacity Required per Day:       11.63       12.70       13.78         Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       <				
Waste Generation Data       4.30       5.16       6.02         Flush Fluid Generated:       5.00       5.00       5.00         Capacity Adjustment:       2.33       2.54       2.76         Total Capacity Required per Day:       11.63       12.70       13.78         Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         Total Pelated:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Hours per Trip:	2	12	7
Waste Generated;       4.30       5.16       6.02         Flush Fluid Generated:       5.00       5.00       5.00         Capacity Adjustment:       2.33       2.54       2.76         Total Capacity Required per Day:       11.63       12.70       13.78         Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Inps per Day:	5	1	2
Flush Fluid Generated:       5.00       5.00       5.00         Capacity Adjustment:       2.33       2.54       2.76         Total Capacity Required per Day:       11.63       12.70       13.78         Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Waste Generation Data			
Capacity Adjustment:       2.33       2.54       2.76         Total Capacity Required per Day:       11.63       12.70       13.78         Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Waste Generated:	4.30	5.16	6.02
Total Capacity Required per Day:       11.63       12.70       13.78         Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Flush Fluid Generated:	5.00	5.00	5.00
Pumpout Labor Cost:       \$0.1       \$0.1       \$0.1         Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Capacity Adjustment:	2.33	2.54	2.76
Connect/Disconnect Labor Cost:       \$4.2       \$4.2       \$4.2         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Total Capacity Required per Day:	11.63	12.70	13.78
Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	•	\$0.1	\$0.1	\$0.1
Total Pumpout/Cleaning Cost per Day:       \$16.3       \$16.3       \$16.3         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       \$52       \$57       \$62         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$16.3
Waste Disposal Cost per Year:       \$52       \$57       \$62         Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Days Operated per Year:			
Maximum Continuous Hours of Service:       23.2       25.5       27.4         Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	·	200	200	200
Total Operating Cost per Service Hour:       \$2.40       \$2.00       \$1.72         - Trip Related:       \$1.65       \$1.37       \$1.18         - Non-Trip Related:       \$0.75       \$0.63       \$0.54         Total per-Car Operating Cost per Year:       \$6,127       \$6,132       \$6,137         Total Fleet Operating Cost per Year:       \$153,179       \$153,300       \$153,421	Waste Disposal Cost per Year:	\$52	\$57	\$62
- Trip Related: \$1.65 \$1.37 \$1.18   - Non-Trip Related: \$0.75 \$0.63 \$0.54    Total per-Car Operating Cost per Year: \$6,127 \$6,132 \$6,137    Total Fleet Operating Cost per Year: \$153,179 \$153,300 \$153,421	Maximum Continuous Hours of Service:	23.2	25.5	27.4
- Non-Trip Related: \$0.75 \$0.63 \$0.54  Total per-Car Operating Cost per Year: \$6,127 \$6,132 \$6,137  Total Fleet Operating Cost per Year: \$153,179 \$153,300 \$153,421	Total Operating Cost per Service Hour:	\$2.40	\$2.00	\$1.72
Total per-Car Operating Cost per Year: \$6,127 \$6,132 \$6,137  Total Fleet Operating Cost per Year: \$153,179 \$153,300 \$153,421	- Trip Related:	\$1.65	\$1.37	\$1.18
Total Fleet Operating Cost per Year: \$153,179 \$153,300 \$153,421	- Non-Trip Related:	\$0.75	\$0.63	\$0.54
	Total per-Car Operating Cost per Year:	\$6,127	\$6,132	\$6,137
Total Fleet Capital Cost: \$176,900	Total Fleet Operating Cost per Year:	\$153,179	\$153,300	\$153,421
	Total Fleet Capital Cost:	\$176,900	<del>-</del>	

Favorable			Unfavorable		٥
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576	· · · · · · · · · · · · · · · · · · ·	
\$1,217 \$1,152 \$65	·		\$2,629 \$2,304 \$325		,
2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
5.00	5.00	5.00	5.00	5.00	5.00
2.33	2.54	2.76	2.33	2.54	2.76
11.63	12.70	13.78	11.63	12.70	13.78
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$16.3	\$16.3	\$16.3	\$16.3
219 219	219 219	219 219	292 292	292 292	292 292
\$45	\$49	\$53	\$60	\$65	* \$71
23.2	25.5	27.4	23.2	25.5	27.4
\$2.20	\$1.84	\$1.57	\$2.55	\$2.12	\$1.82
\$1.65	\$1.37	\$1.18	\$1.65	\$1.37	\$1.18
\$0.56	\$0.46	\$0.40	\$0.90	\$0.75	\$0.64
\$4,821	\$4,825	\$4,829	\$7,434	\$7,439	\$7,445
\$120,514	\$120,618	\$120,722	\$185,844	\$185,982	\$186,120
\$176,900	· · · · · ·		\$176,900		

Car Type: Amcoach
Toilet Type: Self-Cont'd Recirc Manufacturer:

Number of Passengers: 60
Number of Toilets: 2
Total Tank Capacity (gals): 27.0

Scenario: Expected

Capital Cost - Equipment: - Installation:	\$7,076 \$6,500 \$576		
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	11.23	13.47	15.72
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	4.06	4.62	5.18
Total Capacity Required per Day:	20.28	23.09	25.89
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$16.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$91	\$104	\$116
Maximum Continuous Hours of Service:	13.3	14.0	14.6
Total Operating Cost per Service Hour:	\$2.41	\$2.02	\$1.73
- Trip Related:	\$1.66	\$1.39	\$1.19
- Non-Trip Related:	\$0.75	\$0.63	\$0.54
Total per-Car Operating Cost per Year:	\$6,166	\$6,179	\$6 <b>,</b> 191
Total Fleet Operating Cost per Year:	\$191,148	\$191,540	\$191,931
Total Fleet Capital Cost:	\$219,356		

Favorable			Unfavorable	•	•
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		
\$1,217 \$1,152 \$65	*		\$2,629 \$2,304 \$325		
2 5	12 1	7 2	2 5	12 1	7 2
11.23	13.47	15.72	11.23	13.47	15.72
5.00	5.00	5.00	5.00	<b>5</b> .00	5.00
4.06	4.62	5.18	4.06	4.62	5.18
20.28	23.09	25.89	20.28	23.09	25.89
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$16.3	\$16.3	\$16.3	\$16.3
219 219.	219 219	219 219	292 292	292 292	292 292
\$78	\$89	\$100	\$104	\$119	\$133
13.3	14.0	14.6	13.3	14.0	14.6
\$2.22	\$1.85	\$1.59	\$2.56	\$2.14	\$1.84
\$1.66	\$1.39	\$1.19	\$1.66	\$1.39	\$1.19
\$0.56	\$0.46	\$0.40	\$0.90	\$0.75	\$0.64
\$4,854	\$4,865	\$4,876	\$7,478	\$7,493	\$7,507
\$150,472	\$150,807	\$151,142	\$231,825	\$232,272	\$232,719
\$219,356			\$219,356		· 

Car Type: Turbo Power Club Toilet Type: Self-Cont'd Recirc Manufacturer: **Number of Passengers:** 27 **Number of Toilets:** Total Tank Capacity (gals): 13.5 Expected ' Scenario: Capital Cost
- Equipment:
- Installation: \$3,538 \$3,250 \$288 Maintenance Cost: \$962 - Labor: - Spare Parts: \$864 Hours per Trip:

Hours per Trip: Trips per Day:	2 5	12 1	2
Waste Generation Data			
Waste Generated:	5.05	6.06	7.07
Flush Fluid Generated:	2.50	2.50	2.50
Capacity Adjustment:	1.89	2.14	2.39
Total Capacity Required per Dây:	9.44	10.70	11.96
Pumpout Labor Cost:	\$0.0	\$0.0	\$0.0
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.1	\$8.1	\$8.1
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$42	\$48	<b>\$54</b>
Maximum Continuous Hours of Service:	14.3	15.1	15.8
Total Operating Cost per Service Hour:	\$1.21	\$1.01	\$0.86
- Trip Related:	\$0.83	\$0.69	\$0.60
- Non-Trip Related:	\$0.38	\$0.31	\$0.27
Total per-Car Operating Cost per Year:	\$3,080	\$3,086	\$3,091
Total Fleet Operating Cost per Year:	\$18,479	\$18,513	\$18,547
Total Fleet Capital Cost:	\$21,228	·	····

Favorable			Unfavorable		
\$3,538 \$3,250 \$288			\$3,538 \$3,250 \$288	· <u> </u>	
\$609 \$576 \$33			\$1,315 \$1,152 \$163		
2 5	12 1	7 2	2 5	12 1	7 2
5.05	6.06	7.07	5.05	6.06	7.07
2.50 1.89	2.50	2.50	2.50	2.50	2.50
9.44	2.14 10.70	2.39 11.96	1.89 9.44	2.14 10.70	2.39
9.44	10.70	11.90	9.44	, 10.70	11.96
\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.1	\$8.1	\$8.1	\$8.1	\$8.1	\$8.1
219 219	219 219	219 219	292 292	292 292	292 292
\$36	\$41	\$46	\$49	\$55	\$61
14.3	15,1	15.8	14.3	15,1	15.8
\$1.11	\$0.92	\$0.79	\$1.28	\$1.07	\$0.92
\$0.83	\$0.69	\$0.60	\$0.83	\$0.69	\$0.60
\$0.28	\$0.23	\$0.20	\$0.45	\$0.38	\$0.32
\$2,424	\$2,429	\$2,434	\$3,736	\$3,742	\$3,748
\$14,546	\$14,575	\$14,604	\$22,413	\$22,452	\$22,491
\$21,228			\$21,228		

Car Type:

Turbo Coach

Toilet Type: Self-Cont'd Recirc Manufacturer:

Number of Passengers: **Number of Toilets:** 

72

2

Total Tank Capacity (gals):

27.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$7,076 \$6,500 \$576		
Maintenance Cost: - Labor: - Spare Parts:	\$1,923 \$1,728 \$195		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	13.47	16.16	18.86
Flush Fluid Generated:	5.00	5.00	5.00
Capacity Adjustment:	4.62	5.29	5.96
Total Capacity Required per Day:	23.09	26.46	29.82
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$4.2	. \$4.2	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.3	\$16.3	\$20.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$104	\$119	\$134
Maximum Continuous Hours of Service:	11.7	12.2	12.7
Total Operating Cost per Service Hour:	\$2.42	\$2.02	\$2.04
- Trip Related:	\$1.67	\$1.39	\$1.50
- Non-Trip Related:	\$0.75	\$0.63	\$0.54
Total per-Car Operating Cost per Year:	\$6,179	\$6,194	\$7,282
Total Fleet Operating Cost per Year:	\$129,753	\$130,071	\$152,924
Total Fleet Capital Cost:	<b>\$148,</b> 596		

Favorable			Unfavorable		
\$7,076 \$6,500 \$576			\$7,076 \$6,500 \$576		
\$1,217 \$1,152 \$65	·		\$2,629 \$2,304 \$325		
2 5	. 12 1	7 2	2 5	12 1	7 2
13.47	16.16	18.86	13.47	16.16	18.86
5.00	5.00	5.00	5.00	5.00	. 5.00
4.62 23.09	5.29 26.46	5.96	4.62	5.29	5.96
23.09	20.40	29.82	23.09	26.46	29.82
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$4.2	\$4.2	\$8.4	\$4.2	\$4.2	\$8.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.3	\$16.3	\$20.5	\$16.3	\$16.3	\$20.5
0.10					
219 219	219 219	219 219	292 292	292 292	292   292
					202
\$89	\$102	\$115	\$119	\$136	\$153
44.5					
11.7	12.2	12.7	11.7	12.2	12.7
\$2.22	\$1.86	\$1.90	\$2.57	\$2.14	\$2.14
\$1.67	\$1.39	\$1.50	\$1.67	\$1.39	\$1.50
\$0.56	\$0.46	\$0.40	\$0.90	\$0.75	\$0.64
\$4,865	\$4,878	\$5,810	\$7,493	\$7,510	\$8,754
\$102,160	\$102,432	\$122,020	\$157,346	\$157,709	\$183,827
\$148,596			\$148,596		

Car Type: Turbo Cafe

Toilet Type: Self-Cont'd Recirc

Number of Passengers: 52 Manufacturer:

Number of Toilets: Total Tank Capacity (gals): 13.5

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$3,538 \$3,250 \$288		-
Maintenance Cost: - Labor: - Spare Parts:	\$962 \$864 \$98		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	9.73	11.67	13.62
Flush Fluid Generated:	2.50	2.50	2.50
Capacity Adjustment:	3.06	3.54	4.03
Total Capacity Required per Day:	15.29	17.72	20.15
Pumpout Labor Cost:	\$0.0	\$0.0	\$0.0
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$10.2	\$10.2	\$10.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$69	\$80	\$91
Maximum Continuous Hours of Service:	8.8	9.1	9.4
Total Operating Cost per Service Hour:	\$1.43	\$1.19	\$1.02
- Trip Related:	\$1.05	\$0.88	\$0.76
- Non-Trip Related:	\$0.38	\$0.31	\$0.27
Total per-Car Operating Cost per Year:	\$3,643	\$3,654	\$3,665
Total Fleet Operating Cost per Year:	\$10,923	\$10,961	\$10,994
Total Fleet Capital Cost:	\$10,614	· .	<u></u>

Favorable			Unfavorable		
\$3,538 \$3,250 \$288			\$3,538 \$3,250 \$288		
\$609 \$576 \$33			\$1,315 \$1,152 \$163		
2 5	12 1	7 2	2 5	. 12 1	7 2
9.73	11.67	13.62	9.73	11.67	13.62
2.50	2.50	2.50	2.50	2.50	2.50
3.06	3.54	4.03	3.06	3.54	4.03
15.29	17.72	20.15	15.29	17.72	20.15
\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$10.2	\$10.2	\$10.2	\$10.2	\$10.2	\$10.2
219 219	219 219	219 219	292 292	292 292	292 292
\$59	\$68	\$78	\$79	\$91	\$104
. 8.8	9.1	9.4	8.8	9.1	9.4
\$1.33	\$1.11	\$0.95	\$1.50	\$1.25	\$1.08
\$1.05	\$0.88	\$0.76	\$1.05	\$0.88	\$0.76
\$0.28	\$0.23	\$0.20	\$0.45	\$0.38	\$0.32
\$2,907	\$2,916	\$2,925	\$4,379	\$4,391	\$4,404
\$8,720	\$8,748	\$8,776	\$13,136	\$13,174	\$13,211
\$10,614			\$10,614		<u>.</u>

Car Type: Turbo Power Coach Toilet Type: Self-Cont'd Recirc

Manufacturer:

Number of Passengers: 40 Number of Toilets: Total Tank Capacity (gals): 13.5

Scenario: **Expected** 

Capital Cost         \$3,538           Equipment:         \$3250           Installation:         \$288           Maintenance Cost:         \$962           - Labor:         \$864           - Spare Parts:         \$98           Hours per Trip:         2         12         7           Trips per Day:         5         1         2           Waste Generation Data         Waste Generated:         7.48         8.98         10.48           Flush Fluid Generated:         2.50         2.50         2.50           Capacity Adjustment:         2.50         2.87         3.24           Total Capacity Required per Day:         12.48         14.35         16.22           Pumpout Labor Cost:         \$0.0         \$0.0         \$0.0           Connect/Disconnect Labor Cost:         \$0.0         \$0.0         \$0.0           Connect/Disconnect Labor Cost:         \$6.0         \$6.0         \$6.0           Cleaning Labor Cost:         \$6.0         \$6.0         \$6.0           Total Pumpout/Cleaning Cost per Day:         \$8.1         \$10.2         \$10.2           Days Operated per Year:         255         255         255         255           Clean-out Cycles per Year:				
Installation:   \$288		\$3,538		-
Maintenance Cost:       \$962         - Labor:       \$864         - Spare Parts:       \$98         Hours per Trip:       2       12       7         Trips per Day:       5       1       2         Waste Generation Data       Waste Generated:       7.48       8.98       10.48         Flush Fluid Generated:       2.50       2.50       2.50         Capacity Adjustment:       2.50       2.87       3.24         Total Capacity Required per Day:       12.48       14.35       16.22         Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255       255         Clean-out Cycles per Year:       \$56       \$65       \$73         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19				
- Labor: - Spare Parts: - Spare Part	- instanation.	<b>φ200</b>		
Hours per Trip:				0
Hours per Trip: Trips per Day:  Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost: Cleaning Labor Cost: Total Pumpout/Cleaning Cost per Day:  Days Operated per Year: Clean-out Cycles per Year:  Waste Disposal Cost per Service Hour: Total Operating Cost per Service Hour: Non-Trip Related: Non-Trip Related: Total Fleet Operating Cost per Year:  \$43,310  \$50,939  \$51,057				
Trips per Day:       5       1       2         Waste Generation Data       Waste Generated:       7.48       8.98       10.48         Flush Fluid Generated:       2.50       2.50       2.50         Capacity Adjustment:       2.50       2.87       3.24         Total Capacity Required per Day:       12.48       14.35       16.22         Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255       255         Clean-out Cycles per Year:       255       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total Fleet Operating Cost p	- Spare Parts:	\$98		
Waste Generation Data       7.48       8.98       10.48         Flush Fluid Generated:       2.50       2.50       2.50         Capacity Adjustment:       2.50       2.87       3.24         Total Capacity Required per Day:       12.48       14.35       16.22         Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Non-Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total Per-Car Operating Cost per Year:       \$43,30       \$50,939       \$51,057		2	12	7
Waste Generated:       7.48       8.98       10.48         Flush Fluid Generated:       2.50       2.50       2.50         Capacity Adjustment:       2.50       2.87       3.24         Total Capacity Required per Day:       12.48       14.35       16.22         Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Non-Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total Per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310<	Trips per Day:	5	1	2
Flush Fluid Generated:       2.50       2.50       2.50         Capacity Adjustment:       2.50       2.87       3.24         Total Capacity Required per Day:       12.48       14.35       16.22         Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Waste Generation Data			
Capacity Adjustment:       2.50       2.87       3.24         Total Capacity Required per Day:       12.48       14.35       16.22         Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Waste Generated:	7.48	8.98	10.48
Total Capacity Required per Day:       12.48       14.35       16.22         Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Flush Fluid Generated:	2.50	2.50	2.50
Pumpout Labor Cost:       \$0.0       \$0.0       \$0.0         Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Capacity Adjustment:	2.50	2.87	3.24
Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Total Capacity Required per Day:	12.48	14.35	16.22
Connect/Disconnect Labor Cost:       \$2.1       \$4.2       \$4.2         Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057		•		
Cleaning Labor Cost:       \$6.0       \$6.0       \$6.0         Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Pumpout Labor Cost:	\$0.0	<b>\$0.0</b> ;	\$0.0
Total Pumpout/Cleaning Cost per Day:       \$8.1       \$10.2       \$10.2         Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Connect/Disconnect Labor Cost:	\$2.1	\$4.2	\$4.2
Days Operated per Year:       255       255       255         Clean-out Cycles per Year:       \$56       \$65       \$73         Waste Disposal Cost per Year:       \$10.8       \$11.3       \$11.7         Maximum Continuous Hours of Service:       \$1.21       \$1.19       \$1.02         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         Trip Related:       \$0.83       \$0.87       \$0.75         Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Total Pumpout/Cleaning Cost per Day:	\$8.1	\$10.2	\$10.2
Clean-out Cycles per Year:       255       255       255         Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Davis On			
Waste Disposal Cost per Year:       \$56       \$65       \$73         Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Clean-out Cycles per Year:			
Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057		200	200	200
Maximum Continuous Hours of Service:       10.8       11.3       11.7         Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057	Waste Disposal Cost per Year:	\$56	· \$65	\$73
Total Operating Cost per Service Hour:       \$1.21       \$1.19       \$1.02         - Trip Related:       \$0.83       \$0.87       \$0.75         - Non-Trip Related:       \$0.38       \$0.31       \$0.27         Total per-Car Operating Cost per Year:       \$3,094       \$3,639       \$3,647         Total Fleet Operating Cost per Year:       \$43,310       \$50,939       \$51,057		·		•
- Trip Related: \$0.83 \$0.87 \$0.75 - Non-Trip Related: \$0.38 \$0.31 \$0.27 Total per-Car Operating Cost per Year: \$3,094 \$3,639 \$3,647 Total Fleet Operating Cost per Year: \$43,310 \$50,939 \$51,057	Maximum Continuous Hours of Service:	10.8	11.3	11.7
- Non-Trip Related: \$0.38 \$0.31 \$0.27  Total per-Car Operating Cost per Year: \$3,094 \$3,639 \$3,647  Total Fleet Operating Cost per Year: \$43,310 \$50,939 \$51,057	Total Operating Cost per Service Hour:	\$1.21	\$1.19	\$1.02
Total per-Car Operating Cost per Year: \$3,094 \$3,639 \$3,647  Total Fleet Operating Cost per Year: \$43,310 \$50,939 \$51,057	- Trip Related:	\$0.83	\$0.87	\$0.75
Total Fleet Operating Cost per Year: \$43,310 \$50,939 \$51,057	- Non-Trip Related:	\$0.38	\$0.31	\$0.27
Total Fleet Operating Cost per Year: \$43,310 \$50,939 \$51,057	·			
	Total per-Car Operating Cost per Year:	\$3,094	\$3,639	\$3,647
	Total Fleet Operating Cost per Year:	\$43,310	\$50,939	\$51,057
l otal Fleet Capital Cost: \$49,532				
	i otal Fleet Capital Cost:	\$49,532		· · · · · · · · · · · · · · · · · · ·

Favorable		:	Unfavorable		
\$3,538 \$3,250 \$288			\$3,538 \$3,250 \$288		
\$609 \$576 \$33			\$1,315 \$1,152 \$163		
2 5	12 1	7 2	2 5	12 1	7 2
7.48	8.98	10.48	7.48	8.98	10.48
2.50	2.50	2.50	2.50	2.50	2.50
2.50	2.87	3.24	2.50	2.87	3.24
12.48	14.35	16.22	12.48	14.35	16.22
\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
\$2.1	\$4.2	\$4.2	\$2.1	\$4.2	\$4.2
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.1	\$10.2	\$10.2	\$8.1	\$10.2	\$10.2
219 219	219 219	219 219	292 292	292 292	292 292
\$48	\$55	\$63	\$64	\$74	\$83
10.8	11.3	11.7	10.8	11.3	11.7
\$1.11	\$1.10	\$0.95	\$1.28	\$1.25	\$1.07
\$0.83	\$0.87	\$0.75	\$0.83	\$0.87	\$0.75
\$0.28	\$0.23	\$0.20	\$0.45	\$0.38	\$0.32
<b>\$2,436</b>	\$2,903	\$2,910	\$3,751	\$4,374	\$4,384
\$34,104	\$40,643	\$40,744	\$52,516	\$61,235	\$61,370
\$49,532			\$49,532		

D3 Microphor Gravity

Car Type:

Toilet Type:

Coach-HEP-HLV

Gravity

Manufacturer:

Number of Passengers: 72 Number of Toilets: Total Tank Capacity (gals): 300.0

Scenario:

Maximum Continuous Hours of Service:

Total Operating Cost per Service Hour:

Total per-Car Operating Cost per Year:

Total Fleet Operating Cost per Year:

- Trip Related:

- Non-Trip Related:

**Total Fleet Capital Cost:** 

Capital Cost - Equipment: - Installation:	\$31,728 \$30,000 \$1,728		
Maintenance Cost: - Labor: - Spare Parts:	\$1,764 \$864 \$900		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated;	32.33	64.66	96.98
Flush Fluid Generated:	95.36	190.71	286.07
Capacity Adjustment:	31.92	63.84	95.76
Total Capacity Required per Day:	159.61	319.21	478.82
Pumpout Labor Cost:	\$1.0	\$1.9	\$2.9
Connect/Disconnect Labor Cost:	\$2.1	\$4.2	\$4.2
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:	\$27.1	\$30.1	\$31.1
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$277	\$370	\$416

45.1

\$1.79

\$1.22

\$0.58

\$5,497

\$115,445

\$666,288

45.1

\$1.15

\$0.72

\$0.43

\$4,698

\$98,655

45.1

\$0.91

\$0.52

\$0.38

\$4,164

\$87,443

**Expected** 

		•	*		
Favorable			Unfavorable		
\$31,728 \$30,000 \$1,728	****		\$31,728 \$30,000 \$1,728		;
\$876 \$576 \$300			\$2,652 \$1,152 \$1,500		
24 1	48 1	72 1	24 1	48 1	. 72 1
32.33	64.66	96.98	32.33	64.66	96.98
74:30	148.61	222.91	123.84	247.68	371.52
26.66	53.32	79.97	39.04	78.08	117.13
133.29	266.58	399.87	195.21	390.42	585.63
\$0.7	\$1.5	\$2.2	\$1.2	\$2.5	\$3.7
\$2.1	\$2.1	\$4.2	\$2.1	\$4.2	\$4.2
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$26.8	\$27.6	\$30.4	\$27.3	\$30.7	\$31.9
219 110	219 73	219 55	292 146	292 97	292 73
\$198	\$265	\$298	\$388	\$517	\$581
54.0	54.0	54.0	36.9	: 36.9	36.9
\$1.53	\$0.90	\$0.72	\$2.01	\$1.32	\$1.06
\$1.19	\$0.65	\$0.50	\$1.25	\$0.75	\$0.55
\$0.33	\$0.25	\$0.22	\$0.76	\$0.57	\$0.50
\$4,014	\$3,154	\$2,840	\$7,031	\$6,155	\$5,563
\$84,290	\$66,243	\$59,634	\$147,651	\$129,248	\$116,828
\$666,288			\$666,288		

Car Type:

Lounge-HEP-HLV

Manufacturer:

Toilet Type: Gravity

Gravity

Number of Passengers: 86
Number of Toilets: 2
Total Tank Capacity (gals): 300.0

SCEI	iano.	드시	Jacian
Conital Cost			<b>@04 450</b>

Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152	-	
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	38.61	77.23	115.84
Flush Fluid Generated:	113.90	227.80	341.70
Capacity Adjustment:	38.13	76.26	114.38
Total Capacity Required per Day:	190.64	381.28	571.92
Pumpout Labor Cost:	\$1.1	\$2.3	\$3.4
Connect/Disconnect Labor Cost:	\$2.1	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$15.2	\$18.5	\$19.6
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$331	\$442	\$497
Maximum Continuous Hours of Service:	37.8	37.8	37.8
Total Operating Cost per Service Hour:	\$1.08	\$0.75	\$0.60
- Trip Related:	\$0.74	\$0.49	\$0.38
- Non-Trip Related:	\$0.34	\$0.25	\$0.22
Total per-Car Operating Cost per Year:	\$3,310	\$3,047	\$2,782
Total Fleet Operating Cost per Year:	\$19,860	\$18,284	<b>£16,691</b>
Total Fleet Capital Cost:	\$126,912		

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
24 1	<b>48</b> 1	72 1	24	<b>48</b> 1	72 1
38.61	77.23	115.84	38.61	77.23	115.84
88.75	177.50	266.26	147.92	295.84	443.76
31.84	63.68	95.52	46.63	93.27	139.90
159.21	318.42	477.62	233.17	466.34	699.50
\$0.9	\$1.8	\$2.7	\$1.5	\$3.0	\$4.4
\$2.1	\$4.2	\$4.2	\$2.1	\$4.2	\$6.3
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$15.0	\$18.0	\$18.9	\$15.6	\$19.2	\$22.7
219 110	219 73	219 55	292 146	292 97	292 73
\$237	\$316	\$356	\$463	\$617	\$694
45.2	45.2	45.2	30.9	30.9	30.9
\$0.90	\$0.60	\$0.48	\$1.23	\$0.87	\$0.75
\$0.71	\$0.46	\$0.35	\$0.78	\$0.53	\$0.45
\$0.19	\$0.14	\$0.12	\$0.45	\$0.34	\$0.30
\$2,366	\$2,116	\$1,876	\$4,314	\$4,058	\$3,930
\$14,197	\$12,698	\$11,258	\$25,881	\$24,348	\$23,582
\$126,912			\$126,912		

Car Type: Trans Dorm Coach
Toilet Type: Gravity

Number of Passengers: 40
Number of Toilets: 4
Total Tank Capacity (gals): 300.0

Scenario: Expected

	•		
Capital Cost	\$31,728		·
- Equipment:	\$30,000		
- Installation:	\$1,728		
Maintenance Cost:	\$1,764		
- Labor: - Spare Parts:	\$864 \$900		
Spare rate.	Ψ300		
Hours per Trip:	24	48	72
Trips per Day:	1	1	1
Waste Generation Data		1	
	17.00	05.00	50.00
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	52.98	105.95	158.93
Capacity Adjustment:	17.73	35.47	53.20
Total Capacity Required per Day:	88.67	177.34	266.01
Pumpout Labor Cost:	\$0.5	, \$1.1	\$1.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:		•	•
Total Fumpout/Cleaning Cost per Day:	\$26.6	\$27.2	\$27.7
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	128	85	64
Wasta Biannal Cost and Vanu			4004
Waste Disposal Cost per Year:	\$154	\$205	\$231
Maximum Continuous Hours of Service:	81.2	81.2	81.2
Total Operating Cost per Service Hour:	\$1.74	\$1.05	\$0.82
- Trip Related:	\$1.16	\$0.62	\$0.43
- Non-Trip Related:	\$0.58	\$0.43	\$0.43
- Non-Inp Neialed.	φ0.56	φυ.43	<b>Ф</b> 0.36
Total per-Car Operating Cost per Year:	\$5,320	\$4,282	\$3,764
Total Ficet Operating Cost per Year:	\$191,520	\$154,170	\$135,494
Total Fleet Capital Cost:	\$1,142,208		
•			

Manufacturer:

Favorable			Unfavorable		
\$31,728 \$30,000 \$1,728			\$31,728 \$30,000 \$1,728		
\$876 \$576 \$300			\$2,652 \$1,152 \$1,500		
24 1	48 1	72 1	24 1	48 1	72
17.96	35.92	53.88	17.96	35.92	53.88
41.28	82.56	123.84	68.80	137.60	206.40
14.81	29.62 148.10	44.43	21.69	43.38	65.07
74.05	148.10	222.15	108.45	216.90	325.35
\$0.4	\$0.8	\$1.2	\$0.7	\$1.4	\$2.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$26.5	\$26.9	\$27.3	\$26.8	\$27.5	\$30.3
219 110	219 73	219 55	292 146	292 97	292 73
\$110	\$147	\$165	\$215	\$287	\$323
97.2	97.2	97.2	66.4	66.4	66.4
\$1.48	\$0.85	\$0.64	\$1.93	\$1.20	\$0.99
\$1.15	\$0.60	\$0.42	\$1.18	\$0.63	\$0.48
\$0.33	\$0.25	\$0.22	\$0.76	\$0.57	\$0.50
\$3,889	\$2,989	\$2,538	\$6,778	\$5,613	\$5,184
\$140,019	\$107,590	\$91,375	\$244,022	\$202,084	\$186,634
\$1,142,208	<del></del>		\$1,142,208		

Car Type:

Sleeper Super

Toilet Type:

Capital Cost
- Equipment:
- Installation:

Gravity

Manufacturer:

Number of Passengers: Number of Toilets: 44

Number of Tollets.

12

Total Tank Capacity (gals):

Scenario:

300.0

Maintenance Cost: - Labor: - Spare Parts:
Hours per Trip: Trips per Day:
Waste Generation Data Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:
Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost: Total Pumpout/Cleaning Cost per Day:

Days Operated per Year: Clean-out Cycles per Year:

- Trip Related:- Non-Trip Related:

Waste Disposal Cost per Year:

Maximum Continuous Hours of Service: Total Operating Cost per Service Hour:

Total per-Car Operating Cost per Year:

Total Fleet Operating Cost per Year:

**Total Fleet Capital Cost:** 

Expected		
\$74,032 \$70,000 \$4,032		
\$4,692 \$2,592 \$2,100		
24 1	48 1	72 1
19.76	39.51	59.27
58.27	116.55	174.82
19.51	39.01	58.52
97.54	195.07	292.61
\$0.6	\$1.2	\$1.7
\$2.1	\$2.1	\$2.1
\$72.0	\$72.0	\$72.0
\$74.7 ·	\$75.3	\$75.8
255 128	255 85	255 64
\$169	\$226	\$254
73.8	73.8	73.8
\$4.70	\$2.77	\$2.13
\$3.17	\$1.62	\$1.11
\$1.53	\$1.15	\$1.02
\$14,402	\$11,328	\$9,791
\$979,348	\$770,308	\$665,788
<b>65 004 470</b>		•

\$5,034,176

Favorable			Unfavorable		
\$74,032 \$70,000 \$4,032			\$74,032 \$70,000 \$4,032		
\$2,428 \$1,728 \$700			\$6,956 \$3,456 \$3,500		
24 1	. 48 1	72 1	24 1	<b>48</b> 1	72 1
19.76	39.51	59.27	19.76	39.51	59.27
45.41	90.82	136.22	75.68	151.36	~ 227.04
16.29	32.58	48.87	23.86	47.72	71.58
81.46	162.91	244.36	119.29	238.59	357.89
\$0.5	\$0.9	\$1.4	\$0.8	\$1.5	\$2.3
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$72.0	\$72.0	\$72.0	\$72.0	\$72.0	\$72.0
\$74.6	\$75.0	\$75.5	\$74.9	\$75.6	\$78.5
219 110	219 73	219 55	292 146	292 97	292 73
\$121	\$162	\$182	\$237	\$316	\$355
88.4	. 88.4	88.4	60.4	60.4	60.4
\$4.08	\$2.30	\$1.71	\$5.17	\$3.13	\$2.48
\$3.15	\$1.61	\$1.09	\$3.19	\$1.64	\$1.16
\$0.92	\$0.69	\$0.62	\$1.99	\$1.49	\$1.32
\$10,713	\$8,065	\$6,742	\$18,122	\$14,632	\$13,040
\$728,482	\$548,443	\$458,423	\$1,232,294	\$994,946	\$886,696
\$5,034,176			\$5,034,176		

Car Type: Bag Coach Super

Toilet Type: Gravity

Manufacturer:

Number of Passengers: 78

Number of Toilets: 5
Total Tank Capacity (gals): 300.0

Scenario: Expected

Scenano.	Expedied		
Capital Cost - Equipment: - Installation:	\$37,016 \$35,000 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$2,130 \$1,080 \$1,050		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated;	35.02	70.04	105.07
Flush Fluid Generated:	103.30	206.61	309.91
Capacity Adjustment:	34.58	69.16	103.74
Total Capacity Required per Day:	172.91	345.81	518.72
Pumpout Labor Cost:	\$1.0	\$2.1	\$3.1
Connect/Disconnect Labor Cost:	\$2.1	\$4.2	\$4.2
Cleaning Labor Cost:	\$30.0	\$30.0	\$30.0
Total Pumpout/Cleaning Cost per Day:	\$33.1	\$36.3	\$37.3
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$300	\$401	\$451
Maximum Continuous Hours of Service:	41.6	41.6	41.6
Total Operating Cost per Service Hour:	\$2.17	\$1.37	\$1.08
- Trip Related:	\$1.48	\$0.85	\$0.62
- Non-Trip Related:	\$0.69	\$0.52	\$0.46
Total per-Car Operating Cost per Year:	\$6,663	\$5,619	\$4,963
Total Fleet Operating Cost per Year:	\$319,831	\$269,722	\$238,228
Total Fleet Capital Cost:	\$1,776,768		

Favorable			Unfavorable	-	
\$37,016 \$35,000 \$2,016			\$37,016 \$35,000 \$2,016		
\$1,070 \$720 \$350			\$3,190 \$1,440 \$1,750		,
24 1	48 1	72 1	24 1	48 1	72 1
35.02	70.04	105.07	35.02	70.04	105.07
80.50	160.99	241.49	134.16	268.32	402.48
28.88	57.76	86.64	42.30	84.59	126.89
144.40	288.80	433.19	211.48	422.96	634.43
\$0.8	\$1.6	\$2.4	\$1.3	\$2.7	\$4.0
\$2.1	\$2.1	\$4.2	\$2.1	\$4.2	\$6.3
\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
\$32.9	\$33.7	\$36.6	\$33.4	\$36.9	\$40.3
219 110	219 73	219 55	292 146	292 97	292 73
\$215	\$287	\$323	\$420	\$560	\$630
49.9	49.9	49.9	34.0	34.0	34.0
\$1.86	\$1.09	\$0.86	\$2.42	\$1.57	\$1.29
\$1.45	\$0.78	\$0.59	\$1.51	\$0.89	\$0.68
\$0.41	\$0.31	\$0.27	\$0.91	\$0.68	\$0.61
\$4,888	<b>\$</b> 3,818	\$3,397	\$8,492	\$7,340	\$6,764
\$234,630	\$183,242	\$163,067	\$407,634	\$352,313	\$324,652
\$1,776,768		:	\$1,776,768		

Car Type: Coach Super Toilet Type: Gravity

Number of Passengers: 75
Number of Toilets: 6

Total Tank Capacity (gals): 300.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$42,304 \$40,000 \$2,304	<u></u> _	,
Maintenance Cost: - Labor: - Spare Parts:	\$2,496 \$1,296 \$1,200		-
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	33.68	67.35	101.03
Flush Fluid Generated:	99.33	198.66	297.99
Capacity Adjustment:	33.25	66.50	99.75
Total Capacity Required per Day:	166.26	332.51	498.77
Pumpout Labor Cost:	\$1.0	, \$2.0	\$3.0
Connect/Disconnect Labor Cost:	\$2.1	\$4.2	\$4.2
Cleaning Labor Cost:	\$36.0	\$36.0	\$36.0
Total Pumpout/Cleaning Cost per Day:	\$39.1	\$42.2	\$43.2
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$289	\$385	\$433
Maximum Continuous Hours of Service:	43.3	43.3	43.3
Total Operating Cost per Service Hour:	\$2.54	\$1.58	\$1.24
- Trip Related:	\$1.72	\$0.97	\$0.69
- Non-Trip Related:	\$0.81	\$0.61	\$0.54
Total per-Car Operating Cost per Year:	\$7,779	\$6,474	\$5,687
Total Fleet Operating Cost per Yoar:	\$707,891	\$589,137	\$517,553
Total Fleet Capital Cost:	\$3,849,664		

Manufacturer:

Favorable			Unfavorable		
\$42,304 \$40,000 \$2,304			\$42,304 \$40,000 \$2,304		
\$1,264 \$864 \$400			\$3,728 \$1,728 \$2,000		
24 1	<b>48</b> 1	72 1	24 1	<b>48</b> 1	72 1
33.68	67.35	101.03	33.68	67.35	101.03
77.40	154.80	232.20	129.00	258.00	387.00
27.77	55.54	83.31	40.67	81.34	122.01
138.84	277.69	416.53	203.34	406.69	610.03
\$0.8	\$1.5	\$2.3	\$1.3	\$2.6	\$3.9
\$2.1	\$2.1	\$4.2	\$2.1	\$4.2	\$6.3
\$36.0	\$36.0	\$36.0	\$36.0	\$36.0	\$36.0
\$38.9	\$39.6	\$42.5	\$39.4	\$42.8	\$46.2
219 110	219 73	219 55	292 146	292 97	292 73
\$207	\$276	· \$310	\$404	\$538	\$606
51.9	51.9	51.9	35.4	35.4	35.4
\$2.18	\$1.27	\$0.99	\$2.82	\$1.80	\$1.47
<b>\$1.70</b>	\$0.90	\$0.67	\$1.76	\$1.01	\$0.76
\$0.48	, \$0.36	\$0.32	\$1.06	\$0.80	\$0.71
\$5,727	\$4,434	\$3,902	\$9,883	\$8,430	\$7,704
\$521,200	<b>\$403,493</b> .	\$355,103	\$899,326	\$767,154	\$701,068
\$3,849,664			\$3,849,664		

Car Type: Horizon
Toilet Type: Gravity Manufacturer:

Number of Passengers: 82
Number of Toilets: 2
Total Tank Capacity (gals): 300.0

Scenario: Expected

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	12 1	24 1	<b>48</b> 1
Waste Generation Data			
Waste Generated:	18.41	36.82	73.64
Flush Fluid Generated:	54.30	108.60	217.20
Capacity Adjustment:	18.18	36.35	72.71
Total Capacity Required per Day:	90.89	181.77	363.55
Pumpout Labor Cost:	\$0.5	\$1.1	\$2.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.6	\$15.2	\$18.4
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$316	\$316	\$421 <b>\</b>
Maximum Continuous Hours of Service:	39.6	39.6	39.6
Total Operating Cost per Service Hour:	\$1.66	\$1.07	\$0.74
- Trip Related:	\$1.32	\$0.74	\$0.49
- Non-Trip Related:	\$0.34	\$0.34	\$0.25
Total per-Car Operating Cost per Year:	\$5,089	\$3,288	\$3,018
Total Fleet Operating Cost per Year:	\$524,177	\$338,646	\$310,830
Total Fleet Capital Cost:	\$2,178,656		

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
12 1	24 1	48 1	12 1	24 1	48
18.41	36.82	73.64	18.41	36.82	73.64
42.31 15.18	84.62 30.36	169.25	70.52	141.04	282.08
75.90	30.36 151.80	60.72 303.60	22.23 111.16	44.46 222.32	88.93 444.65
75.90	151.60	303.60	111.16	222.32	444.65
\$0.4	\$0.8	\$1.7	\$0.7	\$1.4	\$2.8
\$2.1	\$2.1	\$4.2	\$2.1	\$2.1	\$4.2
\$12.0	\$12.0	\$12.0	<b>\$12.0</b>	\$12.0	\$12.0
\$14.5	\$14.9	\$17.9	\$14.8	\$15.5	\$19.0
219 219	219 110	219 73	292 292	292 146	292 97
\$226	\$226	\$301	\$441	\$441	\$589
47.4	47.4	47.4	32.4	32.4	32.4
\$1.48	\$0.89	\$0.60	\$1.81	\$1.22	\$0.86
\$1.30	\$0.71	\$0.46	\$1.36	\$0.77	\$0.52
\$0.19	\$0.19	\$0.14	\$0.45	\$0.45	\$0.34
\$3,895	\$2,351	\$2,096	\$6,341	\$4,282	\$4,016
\$401,147	\$242,120	\$215,844	\$653,078	\$441,042	\$413,643
\$2,178,656			\$2,178,656		

Car Type: Coach
Toilet Type: Gravity Manufacturer:

Number of Passengers: 48
Number of Toilets: 2

Total Tank Capacity (gals): 300.0

ocenano.		Expected
	•	

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Capital Cost	\$21,152		
- Equipment: - Installation:	\$20,000 \$1,152		
- installation.	φ1,152		,
Maintenance Cost:	\$1,032		
- Labor:	\$432		
- Spare Parts:	\$600		
Hours per Trip:	12	24	48
Trips per Day:	1	1	1
Waste Generation Data			
Waste Generated:	10.78	21.55	43.10
Flush Fluid Generated:	31.79	63.57	127.14
Capacity Adjustment:	10.64	21.28	42.56
Total Capacity Required per Day:	53.20	106.40	212.81
Pumpout Labor Cost:	\$0.3	\$0.6	\$1.3
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.7	\$15.4
Total Turnpoor Glocking Gost por Bay.	Ψ14.4	Ψ1-7-7	Ψ10.4
Days Operated per Year:	255	255	255
Cléan-out Cycle's per Year:	255	128	85
Waste Disposal Cost per Year:	\$185	\$185	\$246
		·	·
Maximum Continuous Hours of Service:	67.7	67.7	67.7
Total Operating Cost per Service Hour:	\$1.60	\$1.01	\$0.63
- Trip Related:	\$1.26	\$0.67	\$0.38
- Non-Trip Related:	\$0.34	\$0.34	\$0.25
Total per-Car Operating Cost per Year:	\$4,901	\$3,099	\$2,588
Total Ficet Operating Cost per Year:	\$382,249	\$241 <b>,7</b> 50	\$201,834
Total Fleet Capital Cost:	<b>\$1,649,856</b>		
	+ 114 1-11-14	<del></del>	
		,	

Favorable	Unfavorable				
\$21,152		7	\$21,152		
\$20,000 \$1,152		1	\$20,000 \$1,152	÷	
ψ1,102			ψ1,102		
\$488			\$1,576		
\$288			\$576		
\$200		Į.	\$1,000		1
12	24	48	12	24	48
1	1	1	1	1	. 1
10.70	04.55	40.40	10.70	04.55	40.40
10.78 24.77	21.55 49.54	43.10 99.07	10.78 41.28	21.55 82.56	43.10 165.12
8.89	49.54 17.77	35.54	13.01	26.03	52.06
44.43	88.86	177.72	65.07	130.14	260.28
44.43	00.00	177.72	65.07	130.14	200.20
\$0.2	\$0.5	\$1.0	\$0.4	\$0.8	\$1.7
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.3	\$14.6	\$15.1	\$14.5	\$14.9	\$15.8
219	219	219	292	292	292
219	110	73	292	146	97
*					
\$132	\$132	\$176	\$258	\$258	\$345
81.0	81.0	81.0	55.3	55.3	55.3
\$1.43	\$0.84	\$0.50	\$1.73	\$1.15	\$0.74
\$1.25	\$0.66	\$0.36	\$1.28	\$0.70	\$0.40
\$0.19	\$0.19	\$0.14	\$0.45	\$0.45	\$0.34
· 60 300	<b>60</b> 040		40.070		
\$3,762	\$2,219	\$1,766	\$6,072	\$4,014	\$3,454
\$293,473	\$173,045	\$:37,753	\$473,627	\$313,056	\$269,385
\$1,649,856	<del></del>		\$1,649,856		

Total Fleet Capital Cost:

Car Type: Coach (HDCP)

Toilet Type: Gravity

ravity Manufacturer:

Number of Passengers: 44
Number of Toilets: 3

Total Tank Capacity (gals): 300.0

•	Scenario:	Expected
		<b></b>
0 4 - 1 0		400 110

Capital Cost - Equipment: - Installation:	\$26,440 \$25,000 \$1,440		
Maintenance Cost: - Labor: - Spare Parts:	\$1,398 \$648 \$750		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	9.88	19.76	39.51
Flush Fluid Generated:	29.14	58.27	116.55
Capacity Adjustment:	9.75	19.51	39.01
Total Capacity Required per Day:	48.77	97.54	195.07
Pumpout Labor Cost:	\$0.3	\$0.6	\$1.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$18.0	\$18.0	\$18.0
Total Pumpout/Cleaning Cost per Day: .	\$20.4	\$20.7	\$21.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$169	\$169	\$226
Maximum Continuous Hours of Service:	73.8	73.8	73.8
Total Operating Cost per Service Hour:	\$2.21	\$1.37	\$0.84
- Trip Related:	\$1.75	\$0.92	\$0.50
- Non-Trip Related:	\$0.46	\$0.46	\$0.34
Total per-Car Operating Cost per Year:	\$6,777	\$4,210	\$3,435
Total Fleet Operating Cost per Year:	\$142,327	\$88,403	\$72,136

\$555,240

Favorable			Unfavorable	o	
\$26,440			\$26,440		
\$25,000		1	\$25,000		
\$1,440			\$1,440	•	
\$682			\$2.114		
\$432			\$2,114 \$864	•	
\$250			\$1,250		
12	24	48	12	24	. 40
1	1	1	1 1	24 1	48 1
				•	
9.88	19.76	39.51	9.88	19.76	39.51
22.70	45.41	90.82	37.84	75.68	151.36
8.15	16.29	32.58	11.93	23.86	47.72
40.73	81.46	162.91	59.65	119.29	238.59
100	01.40	102.51	33.03	119.29	ر 20.55
\$0.2	\$0.5 ·	\$0.9	\$0.4	\$0.8	\$1.5
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$18.0	\$18.0	\$18.0	\$18.0	\$18.0	\$18.0
\$20.3	\$20.6	\$21.0	\$20.5	\$20.9	\$21.6
219	219	219	292	292	292
219	110	73	292	146	97
			•		
\$121	\$121	\$162	\$237	\$237	\$316
		•			
88.4	88.4	88.4	60.4	60.4	60,4
\$2.00	\$1.16	\$0.68	\$2.38	\$1.54	\$0.97
\$1.74	\$0.90	\$0.48	\$1.77	\$0.94	\$0.52
\$0.26	\$0.26	\$0.19	\$0.60	\$0.60	\$0.45
\$5,255	\$3,054	\$2,377	\$8,331	\$5,396	\$4,534
\$110,353	\$64,133	\$49,924	\$174,942	\$113,315	\$95,205
\$555,240			\$555,240		

**Dome Coach** 

Gravity

Manufacturer:

Number of Passengers: 46 **Number of Toilets:** 2 Total Tank Capacity (gals): 300.0

> Expected Scenario:

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152	<u></u>	
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	10.33	20.65	41.31
Flush Fluid Generated:	30.46	60.92	121.84
Capacity Adjustment:	10.20	20.39	40.79
Total Capacity Required per Day:	50.99	101.97	203.94
Pumpout Labor Cost:	\$0.3	\$0.6	\$1.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.7	\$15.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$177	\$177	\$236
Maximum Continuous Hours of Service:	70.6	70.6	70.6
Total Operating Cost per Service Hour:	\$1.59	\$1.01	\$0.63
- Trip Related:	\$1.26	\$0.67	\$0.38
- Non-Trip Related:	\$0.34	\$0.34	\$0.25
Total per-Car Operating Cost per Year:	\$4,890	\$3,088	\$2,573
Total Fleet Operating Cost per Year:	\$58,675	\$37,059	\$30,874
Total Fleet Capital Cost:	\$253,824		

Favorable	15		Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
12 1	24 1	48	12 1	24 1	48 1
10.33	20.65	41.31	10.33	20.65	41.31
23.74	47.47	94.94	39.56	79.12	158.24
8.52	17.03	34.06	12.47	24.94	49.89
42.58	85.16	170.32	62.36	124.72	249.43
\$0.2	\$0.5	\$0.9	\$0.4	\$0.8	\$1.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.3	\$14.6	\$15.0	\$14.5	\$14.9	\$15.7
219 219	219 110	219 73	292 292	292 146	292 97
\$127	\$127	\$169	\$248	\$248	\$330
84.5	84.5	84.5	57.7	57.7	57.7
\$1.43	\$0.84	\$0.50	\$1.73	\$1.14	\$0.73
\$1.24	\$0.66	\$0.36	\$1.28	\$0.69	\$0.40
\$0.19	\$0.19	\$0.14	\$0.45	\$0.45	\$0.34
\$3,755	\$2,211	\$1,756	\$6,056	\$3,998	\$3,433
\$45,056	\$26,529	\$21,068	\$72,676	\$47,973	\$41,191
\$253,824			\$253,824		

Amlounge II

Toilet Type:

Gravity

Manufacturer:

Number of Passengers: 49
Number of Toilets: 2
Total Tank Capacity (gals): 300.0

Scena	no.	Expected

Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	11.00	22.00	44.00
Flush Fluid Generated:	32.45	64.90	129.79
Capacity Adjustment:	10.86	21.72	43.45
Total Capacity Required per Day:	54.31	108.62	217.24
Pumpout Labor Cost:	\$0.3	\$0.6	\$1.3
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.7	\$15.4
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$189	\$189	\$252
Maximum Continuous Hours of Service:	66.3	66.3	66.3
Total Operating Cost per Service Hour:	\$1.60	\$1.01	\$0.63
- Trip Related:	\$1.26	\$0.68	\$0.38
- Non-Trip Related:	\$0.34	\$0.34	\$0.25
Total per-Car Operating Cost per Year:	<b>\$4,906</b>	\$3,105	\$2,595
Total Fleet Operating Cost per Yar:	\$122,654	\$77,622	\$64,875
Total Fleet Capital Cost:	\$528,800		

Favorable '			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
12 1	24 1	48	12	24 1	48 1
11.00	22.00	44.00	11.00	22.00	44.00
25.28	50.57	101.14	42.14	84.28	168.56
9.07	18.14	36.28	13.29	26.57	53.14
45.36	90.71	181.42	66.43	132.85	265.70
\$0.3	\$0.5	\$1.0	\$0.4	\$0.8	\$1.7
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.4	\$14.6	\$15.1	\$14.5	\$14.9	\$15.8
219 219	219 110	219 73	292 292	292 146	292 97
\$135	\$135	\$180	<b>′\$264</b>	\$264	\$352
79.4	79.4	79.4	54.2	54.2	54.2
\$1.43	\$0.85	\$0.51	\$1.74	\$1.15	\$0.74
\$1.25	\$0.66	\$0.37	\$1.29	\$0.70	\$0.40
\$0.19	\$0.19	\$0.14	\$0.45	\$0.45	\$0.34
\$3,766	\$2,222	\$1,771	\$6,080	\$4,021	\$3,464
\$94,159	\$55,560	\$44,281	\$152,001	\$100,536	\$86,605
\$528,800			\$528,800		

Car Type:

Sleeper 10-6

Toilet Type: Gra

Gravity

Manufacturer:

Number of Passengers: Number of Toilets: 22 17

Total Tank Capacity (gals):

300.0

Scenario:	Expected

Flush Fluid Generated:       14.57       29.14       58.         Capacity Adjustment:       4.88       9.75       19.         Total Capacity Required per Day:       24.38       48.77       97.         Pumpout Labor Cost:       \$0.1       \$0.3       \$         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$         Cleaning Labor Cost:       \$102.0       \$102.0       \$102.0         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$106.0         Days Operated per Year:       255       255       255       2         Clean-out Cycles per Year:       255       255       2       2         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	oonano.	ZAPOOLOG		
Maintenance Cost:       \$6,522         - Labor:       \$3,672         - Spare Parts:       \$2,850         Hours per Trip:       12       24         Trips per Day:       1       1         Waste Generated:       4.94       9.88       19         Flush Fluid Generated:       14.57       29.14       58         Capacity Adjustment:       4.88       9.75       19         Total Capacity Required per Day:       24.38       48.77       97         Pumpout Labor Cost:       \$0.1       \$0.3       \$         Connect/Disconnect Labor Cost:       \$0.1       \$0.3       \$         Cleaning Labor Cost:       \$102.0       \$102.0       \$10         Cleaning Labor Cost:       \$102.0       \$102.0       \$10         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$10         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$8.71       \$4.38       \$2         Non-Trip Related:       \$2.13       \$2.13       <	- Equipment:	\$95,000		
Hours per Trip: Trips per Day:  12 24 1 1  Waste Generation Data  Waste Generated: Flush Fluid Generated: Capacity Adjustment: Total Capacity Required per Day:  Pumpout Labor Cost: Connect/Disconnect Labor Cost: Cleaning Labor Cost: Total Pumpout/Cleaning Cost per Day:  Days Operated per Year: Clean-out Cycles per Year: Waste Disposal Cost per Service Hour: Trip Related: Non-Trip Related: San San San San San San San San San San	- Labor:	\$6,522 \$3,672		
Waste Generated:       4.94       9.88       19         Flush Fluid Generated:       14.57       29.14       58         Capacity Adjustment:       4.88       9.75       19         Total Capacity Required per Day:       24.38       48.77       97         Pumpout Labor Cost:       \$0.1       \$0.3       \$         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$3         Cleaning Labor Cost:       \$102.0       \$102.0       \$10         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$10         Days Operated per Year:       255       255       25	Hours per Trip:	12	24 1	<b>48</b> 1
Flush Fluid Generated:       14.57       29.14       58.         Capacity Adjustment:       4.88       9.75       19.         Total Capacity Required per Day:       24.38       48.77       97.         Pumpout Labor Cost:       \$0.1       \$0.3       \$         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$         Cleaning Labor Cost:       \$102.0       \$102.0       \$102.0         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$106.0         Days Operated per Year:       255       255       255       2         Clean-out Cycles per Year:       255       255       2       2         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Waste Generation Data		:	
Capacity Adjustment:       4.88       9.75       19.75         Total Capacity Required per Day:       24.38       48.77       97.75         Pumpout Labor Cost:       \$0.1       \$0.3       \$1.75         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$3.25         Cleaning Labor Cost:       \$102.0       \$102.0       \$102.0         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$106.0         Days Operated per Year:       255	Waste Generated:	4.94	9.88	19.76
Total Capacity Required per Day:       24.38       48.77       97.         Pumpout Labor Cost:       \$0.1       \$0.3       \$1         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1         Cleaning Labor Cost:       \$102.0       \$102.0       \$102.0         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$10         Days Operated per Year:       255       255       25       25         Clean-out Cycles per Year:       255       128       \$1         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$2.13       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Flush Fluid Generated:	14.57	29.14	58.27
Pumpout Labor Cost:       \$0.1       \$0.3       \$1         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$3         Cleaning Labor Cost:       \$102.0       \$102.0       \$10         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$10         Days Operated per Year:       255       255       25       25         Clean-out Cycles per Year:       255       128       \$1         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$2.13       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Capacity Adjustment:	4.88	9.75	19.51
Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$3.7         Cleaning Labor Cost:       \$102.0       \$102.0       \$102.0         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$104.2         Days Operated per Year:       255       255       255       255         Clean-out Cycles per Year:       255       128       28         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Non-Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Total Capacity Required per Day:	24.38	48.77	97.54
Cleaning Labor Cost:       \$102.0       \$102.0       \$102.0         Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$104.4         Days Operated per Year:       255       255       255       225         Clean-out Cycles per Year:       \$85       \$85       \$1         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$8.71       \$4.38       \$2         - Non-Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Pumpout Labor Cost:	\$0.1	\$0.3	\$0.6
Total Pumpout/Cleaning Cost per Day:       \$104.2       \$104.4       \$104.2         Days Operated per Year:       255       255       255       2255         Clean-out Cycles per Year:       \$85       \$85       \$1         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$8.71       \$4.38       \$2         - Non-Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Days Operated per Year:       255       255       255       225         Clean-out Cycles per Year:       \$85       \$85       \$1         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$8.71       \$4.38       \$2         - Non-Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	•	\$102.0	\$102.0	\$102.0
Clean-out Cycles per Year:       255       128         Waste Disposal Cost per Year:       \$85       \$85       \$1         Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$8.71       \$4.38       \$2         - Non-Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Total Pumpout/Cleaning Cost per Day:	\$104.2	\$104.4	\$104.7
Maximum Continuous Hours of Service:       147.6       147.6       14         Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3         - Trip Related:       \$8.71       \$4.38       \$2         - Non-Trip Related:       \$2.13       \$2.13       \$1         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Days Operated per Year: Clean-out Cycles per Year:			255 85
Total Operating Cost per Service Hour:       \$10.84       \$6.50       \$3.         - Trip Related:       \$8.71       \$4.38       \$2.         - Non-Trip Related:       \$2.13       \$2.13       \$1.         Total per-Car Operating Cost per Year:       \$33,242       \$19,943       \$15,5	Waste Disposal Cost per Year:	\$85	\$85	\$113
- Trip Related: \$8.71 \$4.38 \$2. - Non-Trip Related: \$2.13 \$2.13 \$1. Total per-Car Operating Cost per Year: \$33,242 \$19,943 \$15,5	Maximum Continuous Hours of Service:	147.6	147.6	147.6
- Non-Trip Related: \$2.13 \$2.13 \$1.  Total per-Car Operating Cost per Year: \$33,242 \$19,943 \$15,5	Total Operating Cost per Service Hour:	\$10.84	\$6.50	\$3.80
Total per-Car Operating Cost per Year: \$33,242 \$19,943 \$15,5	- Trip Related:	\$8.71	\$4.38	\$2.21
	- Non-Trip Related:	\$2.13	\$2.13	\$1.60
Total Fleet Operating Cost per Year: \$2,725,803 \$1,635,304 \$1,275,1	Total per-Car Operating Cost per Year:	\$33,242	\$19,943	\$15,550
	Total Fleet Operating Cost per Year:	\$2,725,803	\$1,635,304	\$1,275,137
Total Fleet Capital Cost: \$8,238,704	Total Fleet Capital Cost:	\$8,238,704		

Favorable			Unfavorable		
\$100,472 \$95,000 \$5,472			\$100,472 \$95,000 \$5,472		
\$3,398 \$2,448 \$950			\$9,646 \$4,896 \$4,750		
12 1	24 1	. 48 1	12	24 1	48 1
4.94	9.88	19.76	4.94	9.88	19.76
11.35	22.70	45.41	18.92	37.84	75.68
4.07	8.15	16.29	5.96	11.93	23.86
20.36	40.73	81.46	29.82	59.65	119.29
\$0.1	\$0.2	\$0.5	\$0.2	\$0.4	\$0.8
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$104.2	\$104.3	\$104.6	\$104.3	\$104.5	\$104.9
219 219	219 110	219 73	292 292	292 146	292 97
\$61	\$61	\$81	\$118	\$118	\$158
176.8	176.8	176.8	120.7	120.7	120.7
\$10.00	\$5.66	\$3.17	\$11.48	\$7.14	\$4.28
\$8.71	\$4.37	\$2.20	\$8.72	\$4.39	\$2.22
\$1.29	\$1.29	\$0.97	\$2.75	\$2.75	\$2.06
\$26,281	\$14,882	· \$11,111	\$40,217	\$25,018	\$20,010
\$2,155,076	\$1,220,362	\$911,128	\$3,297,784	\$2,051,499	\$1,640,818
\$8,238,704			\$8,238,704	,	

Car Type: Amcoach II

Toilet Type: Gravity

Manufacturer:

Number of Passengers: 59 Number of Toilets: 2

Total Tank Capacity (gals): 300.0

Scenario:	Expected
Scenario:	Expected

Capital Cost \$21,152 - Equipment: \$20,000 - Installation: \$1,152  Maintenance Cost: \$1,032 - Labor: \$432	
- Labor: \$432 - Spare Parts: \$600	
Hours per Trip: 24 48 Trips per Day: 1 1	72 1
Waste Generation Data	
Waste Generated: 26.49 52.98	79.47
Flush Fluid Generated: 78.14 156.28	234.42
Capacity Adjustment: 26.16 52.32	78.47
Total Capacity Required per Day: 130.79 261.58	392.36
Pumpout Labor Cost: \$0.8 \$1.6	\$2.3
Connect/Disconnect Labor Cost: \$2.1 \$2.1	\$4.2
Cleaning Labor Cost: \$12.0 \$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day: \$14.9 \$15.7	\$18.5
Days Operated per Year: 255 255 Clean-out Cycles per Year: 128 85	255 64
Waste Disposal Cost per Year: \$227 \$303	\$341
Maximum Continuous Hours of Service: 55.1 55.1	55.1
Total Operating Cost per Service Hour: \$1.03 \$0.65	\$0.56
- Trip Related: \$0.69 \$0.40	\$0.33
- Non-Trip Related: \$0.34 \$0.25	\$0.22
Total per-Car Operating Cost per Year: \$3,160 \$2,669	\$2,557
Total Flee Operating Cost per Year: \$376,079 \$317,602	\$304,326
Total Fleet Capital Cost: \$2,517,088	

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
24 1	48 1	72 1	24 1	48 1	72 1
26.49	52.98	79.47	26.49	52.98	79.47
60.89	121.78	182.66	101.48	202.96	304.44
21.84	43.69	65.53	31.99	63.99	95.98
109.22	218.45	327.67	159.96	319.93	479.89
\$0.6	\$1.2	\$1.8	\$1.0	\$2.0	\$3.0
\$2.1	\$2.1	\$4.2	\$2.1	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.7	\$15.3	\$18.0	\$15.1	\$18.2	\$19.2
219 110	219 73	219 55	292 146	292 97	292 . 73
\$163	\$217	\$244	\$318	\$423	\$476
65.9	65.9	65.9	45.0	45.0	45.0
\$0.86	\$0.52	\$0.44	\$1.17	\$0.81	\$0.66
\$0.67	\$0.38	\$0.31	\$0.72	\$0.47	\$0.36
\$0.19	\$0.14	\$0.12	\$0.45	\$0.34	\$0.30
\$2,261	\$1,823	\$1,719	\$4,100	\$3,774	\$3,457
\$269,092	\$216,945	\$204,554	\$487,946	\$449,088	\$411,416
\$2,517,088			\$2,517,088	· · · · · · · · · · · · · · · · · · ·	

Car Type: Slumbercoach 24-8

Toilet Type:

Gravity Manufacturer:

Number of Passengers: 40 Number of Toilets: 32

Total Tank Capacity (gals): 300.0

Sceriano.	Expected

Capital Cost	\$179,792		
- Equipment: - Installation:	\$170,000 \$9,792		
in ottailation.	40,.02		
Maintenance Cost:	\$12,012		
- Labor:	\$6,912		
- Spare Parts:	\$5,100		
Hours per Trip:	24	48	72
Trips per Day:	_i	1	1
•			
Waste Generation Data			
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	52.98	105.95	158.93
Capacity Adjustment:	17.73	35.47	53.20
Total Capacity Required per Day:	88.67	177.34	266.01
•			
Pumpout Labor Cost:	\$0.5	\$1.1	\$1.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$192.0	\$192.0	\$192.0
Total Pumpout/Cleaning Cost per Day:	\$194.6	\$195.2	\$195.7
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$154	\$205	\$231
Maximum Continuous Hours of Service:	81.2	81.2	81.2
Total Operating Cost per Service Hour:	\$12.08	\$7.05	\$5.38
- Trip Related:	\$8.16	\$7.03 \$4.12	\$2.77
•	*	•	•
- Non-Trip Related:	\$3.92	\$2.94	\$2.61
Total per-Car Operating Cost per Year:	\$37,030	\$28,838	\$24,743
Total Fleet Operating Cost per Year:	\$592,480	\$461,416	\$395,884
Total Fleet Capital Cost:	\$2,876,672		

Favorable			Unfavorable		
\$179,792 \$170,000 \$9,792	,		\$179,792 \$170,000 \$9,792		
\$6,308 \$4,608 \$1,700			\$17,716 \$9,216 \$8,500		
24 1	48 1	72 1	24	48 1	<b>72</b> 1
17.96	35.92	53.88	17.96	35.92	53.88
41.28	82.56	123.84	68.80	137.60	206.40
14.81	29.62	44.43	21.69	43.38	65.07
74.05	148.10	222.15	108.45	216.90	325.35
\$0.4	\$0.8	\$1.2	\$0.7	\$1.4	. \$2.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$192.0	\$192.0	\$192.0	\$192.0	\$192.0	\$192.0
\$194.5	\$194.9	\$195.3	\$194.8	\$195.5	\$198.3
219 110	219 73	219 55	292 146	292 97	292 73
\$110	\$147	\$165	\$215	\$287	\$323
97,2	97.2	97.2	66.4	66.4	66.4
\$10.55	\$5.90	\$4.36	\$13.23	\$7.93	\$6.19
\$8.15	\$4.10	\$2.75	\$8.18	\$4.13	\$2.82
\$2.40	\$1.80	\$1.60	\$5.06	\$3.79	\$3.37
\$27,717	\$20,685	\$17,168	\$46,370	\$37,029	\$32,512
\$443,479	\$330,954	\$274,691	\$741,926	<b>\$</b> 592 <b>,</b> 471	\$520,196
\$2,876,672			\$2,876,672		

Car Type: Viewliner-Sleeper
Toilet Type: Gravity

Number of Passengers: 34 Number of Toilets: 17

Total Tank Capacity (gals): 300.0

Scenario:	Expected
Scenario:	⊨xpectea

Manufacturer:

,522 ,672 ,850 24 48 1 1 5.27 30.53 5.03 90.06 5.07 30.15 5.37 150.74 \$0.5 \$0.9 \$2.1 \$2.1 02.0 \$102.0	45.80 6 135.09 6 45.22 226.11 9 \$1.4 \$2.1
5.27 30.53 5.03 90.06 5.07 30.15 5.37 150.74 \$0.5 \$0.9 \$2.1 \$2.1	45.80 6 135.09 6 45.22 226.11 9 \$1.4 \$2.1
5.03 90.06 5.07 30.15 5.37 150.74 \$0.5 \$0.9 \$2.1 \$2.1	35.09 45.22 226.11 31.4 \$2.1
5.03 90.06 5.07 30.15 5.37 150.74 \$0.5 \$0.9 \$2.1 \$2.1	35.09 45.22 226.11 31.4 \$2.1
5.07 30.15 5.37 150.74 \$0.5 \$0.9 \$2.1 \$2.1	45.22 45.22 226.11 \$1.4 \$2.1
5.37 150.74 \$0.5 \$0.9 \$2.1 \$2.1	\$ 226.11 \$1.4 \$2.1
\$0.5 \$0.9 \$2.1 \$2.1	\$1.4 \$2.1
\$2.1 \$2.1	\$2.1
··	<b>*</b>
02.0 \$102.0	\$102.0
WIDEIU	
04.6 \$105.0	\$105.5
255 255 128 85	
S131 \$175	\$196
95.5 95.5	95.5
6.53 \$3.83	\$2.93
4.40 \$2.23	\$1.51
2.13 \$1.60	\$1.42
,009 \$15,639	\$13,454
,018 \$31,278	\$26,908
	\$6.53 \$3.83 \$4.40 \$2.23 \$2.13 \$1.60 \$1,009 \$15,639

Favorable			Unfavorable		
\$100,472 \$95,000 \$5,472			\$100,472 \$95,000 \$5,472		
\$3,398 \$2,448 \$950			\$9,646 \$4,896 \$4,750		
24 1	<b>48</b> 1	72 1	24	48 1	72 1
15.27	30.53	45.80	. 15.27	30.53	45.80
35.09	70.18	105.26	58.48	116.96	175.44
12.59	25.18	37.77	18.44	36.87	55.31
62.94	125.88	188.83	92.18	184.36	276.55
\$0.4	\$0.7	\$1.1	\$0.6	\$1.2	\$1.8
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$104.5	\$104.8	\$105.2	\$104.7	\$105.3	\$105.9
219 110	219 73	219 55	292 146	292 97	292 73
\$94	\$125	\$141	\$183	\$244	\$275
114.4	114.4	114.4	78.1	78.1	78.1
\$5.68	\$3.19	\$2.36	\$7.17	\$4.31	\$3.36
\$4.39	\$2.22	\$1.50	\$4.41	\$2.25	\$1.52
\$1.29	\$0.97	\$0.86	\$2.75	\$2.06	\$1.84
\$14,929	\$11,174	\$9,296	\$25,113	\$20,136	\$17,648
\$29,858	\$22,347	\$18,591	\$50,226	\$40,273	\$35,296
\$200,944			\$200,944	. *	

Car Type: Amcafe
Toilet Type: Gravity

Toilet Type: Gravity Manufacturer:

Number of Passengers: 53
Number of Toilets: 2
Total Tank Capacity (gals): 300.0

Scenario:	Expected		
Capital Cost	\$21,152 \$20,000		
- Installation:	\$1,152		
Maintenance Cost:	\$1,032 \$400		
- Labor; - Spare Parts:	\$432 \$600		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data		,	
Waste Generated:	15.86	15.86	23.80
Flush Fluid Generated:	46.80	46.80	70.19
Capacity Adjustment:	15.67	15.67	23.50
Total Capacity Required per Day:	· 78.33	78.33	117.49
Pumpout Labor Cost:	\$0.5	\$0.5	\$0.7
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.6	\$14.6	\$14.8
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
• Waste Disposal Cost per Year:	\$272	\$272	\$204
·			
Maximum Continuous Hours of Service:	61.3	61.3	61.3
Total Operating Cost per Service Hour:	\$1.23	\$1.23	\$1.02
- Trip Related:	\$0.98	\$0.98	\$0.68
- Non-Trip Related:	\$0.25	\$0.25	\$0.34
Total per-Car Operating Cost per Year:	\$5,026	\$5,026	\$3,127
Total Fleet Operating Cost per Year:	\$226,182	\$226,182	\$140,718
Total Fleet Capital Cost:	\$951,840		

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200	÷		\$1,576 \$576 \$1,000	:	
8 2	16 1	24 1	8 2	16 1	24 1
15.86	15.86	23.80	15.86	15.86	23.80
36.46	36.46	54.70	60.77	60.77	91.16
13.08	13.08	19.62	19.16	19.16	28.74
65.41	65.41	98.12	95.80	95.80	143.70
\$0.4	\$0.4	\$0.5	\$0.6	\$0.6	\$0.9
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.5	\$14.5	\$14.6	\$14.7	\$14.7	\$15.0
219 219	219 219	219 110	292 292	292 292	292 146
\$195	\$195	\$146	\$380	\$380	\$285
73.4	73.4	73.4	50.1	50.1	50.1
\$1.10	\$1.10	\$0.85	\$1.34	\$1.34	\$1.16
\$0.96	\$0.96	\$0.67	\$1.00	\$1.00	\$0.71·
\$0.14	\$0.14	\$0.19	\$0.34	\$0.34	\$0.45
\$3,851	\$3,851	\$2,238	\$6,251	\$6,251	\$4,053
\$173,276	\$173,276	\$100,708	\$281,299	\$281,299	\$182,386
\$951,840			\$951,840	,	

Car Type: Amcoach Toilet Type: Gravity

Manufacturer:

Number of Passengers: 84 **Number of Toilets:** 2 Total Tank Capacity (gals): 300.0

> Scenario: **Expected**

oonano.	LAPOOLOG		
Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated:	25.14	25.14	37.72
Flush Fluid Generated:	74.17	74.17	111.25
Capacity Adjustment:	24.83	24.83	37.24
Total Capacity Required per Day:	124.14	124.14	186.21
Pumpout Labor Cost:	\$0.7	\$0.7	\$1.1
Connect/Disconnect Labor Cost:	\$2.1	\$0.7 \$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.8	\$14.8	\$15.2
	<b>*.</b>	Ų <u>.</u>	¥10.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	. \$431	\$431	\$324
Maximum Continuous Hours of Service:	38.7	38.7	38.7
Total Operating Cost per Service Hour:	\$1.29	\$1.29	\$1.08
- Trip Related:	\$1.03	\$1.03	\$0.74
- Non-Trip Related:	\$0.25	\$0.25	\$0.34
Total per-Car Operating Cost per Year:	\$5,255	\$5,255	\$3,299
Total Fleet Operating Cost per Year:	\$1,397,936	\$1,397,936	\$877,511
Total Fleet Capital Cost:	\$5,626,432		<u> </u>

Favorable			Unfavorable			
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152	/		
\$488 \$288 \$200			\$1,576 \$576 \$1,000			
8 2	16 1	24	8 2	16 1	. 24 . 1	
25.14 57.79	25.14 57.79	37.72 86.69	25.14 96.32	25.14 96.32	37.72 144.48	
20.73	20.73	31.10	30.37	30.37	45.55	
103.67	103.67	155.51	151.83	151.83	45.55 227.75	
\$0.6	\$0.6	\$0.9	\$1.0	\$1.0	\$1.4	
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	
\$14.7	\$14.7	\$15.0	\$15.1	\$15.1	\$15.5	. 
219 219	219 219	219 110	292 292	292 292	292 146	i i
\$309	\$309	\$232	\$603	\$603	\$452	
46.3	46.3	46.3	31.6	31.6	31.6	1
\$1.14	\$1.14	\$0.90	\$1.41	\$1.41	\$1.23	
\$1.01	\$1.01	\$0.71	\$1.07	\$1.07	\$0.78	i
\$0.14	\$0.14	\$0.19	\$0.34	\$0.34	\$0.45	
\$4,011	\$4,011	\$2,358	\$6,577	\$6,577	\$4,298	
\$1,066,989	\$1,066,989	\$627,348	\$1,749,589	\$1,749,589	\$1,143,202	
\$5,626,432			\$5,626,432			

Car Type: **Amclub** Toilet Type: Gravity Manufacturer: **Number of Passengers:** 41 Number of Toilets: 2 Total Tank Capacity (gals): 300.0 **Expected** Scenario: Capital Cost \$21,152 - Equipment: - Installation: \$20,000 \$1,152 Maintenance Cost: \$1,032 - Labor: - Spare Parts: \$432 Hours per Trip: 8. 16

Trips per Day:	2	1	1
Waste Generation Data			
Waste Generated:	12.27	12.27	18.41
Flush Fluid Generated:	36.20	36.20	54.30
Capacity Adjustment:	12.12	12.12	18.18
Total Capacity Required per Day:	60.59	60.59	90.89
Pumpout Labor Cost:	\$0.4	\$0.4	\$0.5
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.5	\$14.5	\$14.6
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$211	\$211	\$158
Maximum Continuous Hours of Service:	79.2	79.2	79.2
Total Operating Cost per Service Hour:	\$1.21	\$1.21	\$1.00
- Trip Related:	\$0.96	\$0.96	\$0.66
- Non-Trip Related:	\$0.25	\$0.25	\$0.34
Total per-Car Operating Cost per Year:	\$4,938	\$4,938	\$3,061
Total Fleet Operating Cost per Year:	\$118,502	\$118,502	\$73,453
Total Fleet Capital Cost:	\$507,648	····	<del></del>

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152	· · · · · · · · · · · · · · · · · · ·	
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
8 2	16 1	24	8 2	16 1	24
12.27	12.27	18.41	12.27	12.27	18,41
28.21	28.21	42.31	47.01	47.01	70.52
10.12	10.12	15.18	14.82	14.82	22.23
50.60	50.60	75.90	74.11	74.11	111.16
\$0.3	\$0.3	\$0.4	\$0.5	\$0.5	\$0.7
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.4	\$14.4	\$14.5	\$14.6	\$14.6	\$14.8
219 219	. 219 219	219 110	292 292	292 292	292 146
\$151	\$151	\$113	\$294	\$294	\$221
94.9	94.9	94.9	64.8	64.8	64.8
\$1.08	\$1.08	\$0.83	\$1.31	\$1.31	\$1.13
\$0.94	\$0.94	\$0.65	\$0.97	\$0.97	\$0.68
\$0.14	\$0.14	\$0.19	\$0.34	\$0.34	\$0.45
\$3,788	\$3,788	\$2,191	\$6,125	\$6,125	\$3,958
\$90,921	\$90,921	\$52,592	\$146,995	\$146,995	\$94,999
\$507,648			\$507,648		

Car Type: Met-Srvc Dinette
Toilet Type: Gravity Manufacturer:

Number of Passengers: 23 Number of Toilets: 2 Total Tank Capacity (gals): 300.0

Scenario: Expected

	,		
Capital Cost	\$21,152		
- Equipment:	\$20,000		
- Installation:	\$1,152		
Maintenance Cost:	\$1,032		
- Labor:	\$432		
- Spare Parts: .	\$600		
Hours per Trip:	2 5	12	7 2
Trips per Day:	5	1	2
Waste Generation Data			
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	12.69	15.23	17.77
Capacity Adjustment:	4.25	5.10	5.95
Total Capacity Required per Day:	21.24	25.49	29.74
Pumpout Labor Cost:	\$0.1	\$0.2	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.3
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	255	255	255
Waste Disposal Cost per Year:	\$74	\$89	\$103
	•	•	, ,
Maximum Continuous Hours of Service:	141.2	141.2	141.2
Total Operating Cost per Service Hour:	\$1.86	\$1.55	\$1.34
- Trip Related:	\$1.45	\$1.22	\$1.05
- Non-Trip Related:	\$0.40	\$0.34	\$0.29
Total per-Car Operating Cost per Year:	\$4,741	\$4,762	\$4,783
Total Fleet Operating Cost per Year:	\$61,630	\$61,907	\$62,183
Total Fleet Capital Cost:	\$274,976		

Favorable			Unfavorable	,	
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200		,	\$1,576 \$576 \$1,000		:
2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
9.89	11.87	13.85	16.48	19.78	23.08
3.55	4.26	4.97	5.20	6.24	7.28
17.74	21.29	24.84	25.98	31.18	36.38
\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2
· \$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.3	\$14.3	\$14.3
219 219	219 219	219 219	292 292	292 292	292 292
\$53	\$63	\$74	\$103	\$124	\$144
169.1	169.1	169.1	115.5	115.5	115.5
\$1.67	\$1.39	\$1.20	\$2.00	\$1.68	\$1.44
\$1.44	\$1.21	\$1.04	\$1.46	\$1.23	\$1.06
\$0.22	\$0.19	\$0.16	\$0.54	\$0.45	. \$0.39
\$3,650	\$3,665	\$3,680	\$5,845	\$5,875	\$5,905
\$47,455	\$47,619	\$47,843	\$75,979	\$76,372	\$76,766
\$274,976			\$274,976		

Car Type: Met-Srvc Coach
Toilet Type: Gravity Manufacturer:

Number of Passengers: 60
Number of Toilets: 2
Total Tank Capacity (gals): 300.0

Scenario: Expected

Coonano.	LAPOOLOG		
Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated;	11.23	13.47	15.72
Flush Fluid Generated:	33.11	39.73	46.35
Capacity Adjustment:	11.08	13.30	15.52
Total Capacity Required per Day:	55.42	66.50	77.59
Pumpout Labor Cost:	\$0.3	\$0.4	\$0.5
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.5	\$14.6
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$193	\$231	\$270
Maximum Continuous Hours of Service:	54.1	54.1	54.1
Total Operating Cost per Service Hour:	\$1.92	\$1.62	\$1.40
- Trip Related:	\$1.52	\$1.28	\$1.12
- Non-Trip Related:	\$0.40	\$0.34	\$0.29
Total per-Car Operating Cost per Year:	\$4,912	\$4,967	\$5,023
Total Fleet Operating Cost per Year:	\$245,586	\$248,357	\$251,129
Total Fleet Capital Cost:	\$1,057,600		<del></del>

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152	, , ,	
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
2 5	12 1	7 2	2 5	12 1	7 2
11.23 25.80	13.47 30.96	15.72 36.12	11.23 43.00	13.47 51.60	15.72 60.20
9.26	11.11	12.96	13.56	16.27	18.98
46.28	55.54	64.79	67.78	81.34	94.89
60.2	<b>¢</b> 0.0	60.4	<b>60.4</b>	¢o s	
\$0.3 \$2.1	\$0.3 <b>\$</b> 2.1	\$0.4   \$2.1	\$0.4 \$2.1	\$0.5 \$2.1	\$0.6 \$2.1
\$12.0	۶۲.۱ \$12.0	\$12.0	\$2.1 \$12.0	\$2.1 \$12.0	\$2.1 \$12.0
\$14.4	\$14.4	\$14.5	\$14.5	\$14.6 <sup>-</sup>	\$14.7
219 219	219 219	219 219	292 292	292 292	292 292
\$138	\$165	\$193	\$269	\$323	· \$377
64.8	64.8	64.8	44.3	44.3	44.3
\$1.72	\$1.45	\$1.26	\$2.08	\$1.76	\$1.53
\$1.50	\$1.26	\$1.10	\$1.55	\$1.31	\$1.14
\$0.22	\$0.19	\$0.16	\$0.54	\$0.45	\$0.39
\$3,770	\$3,809	\$3,848	\$6,088	\$6,167	\$6,246
\$188,512	\$190,456	\$192,399	\$304,397	\$308,344	\$312,291
<b>\$1,057,600</b>			\$1,057,600	i	

Car Type: Met-Srvc Club

Toilet Type: Gravity

Manufacturer:

Number of Passengers: 33 Number of Toilets: 2

Total Tank Capacity (gals): 300.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated;	6.17	7.41	8.64
Flush Fluid Generated:	18.21	21.85	25.49
Capacity Adjustment:	6.10	7.32	8.53
Total Capacity Required per Day:	30.48	36.58	42.67
Pumpout Labor Cost:	\$0.2	\$0.2	\$0.3
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.3	\$14.3	\$14.4
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$106	\$127	\$148
Maximum Continuous Hours of Service:	98.4	98.4	98.4
Total Operating Cost per Service Hour:	\$1.87	\$1.57	\$1.36
- Trip Related:	\$1.47	\$1.23	\$1.07
- Non-Trip Related:	\$0.40	\$0.34	\$0.29
Total per-Car Operating Cost per Year:	\$4,787	\$4,817	\$4,848
Total Fleet Operating Cost per Year:	\$62,231	\$62,627	\$63,024
Total Fleet Capital Cost:	\$274,976	•	

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
2 5	12 1	7 2	2 5	12 1	7 2
6.17	7.41	8.64	6.17	7.41	8.64
14.19	17.03	19.87	23.65	28.38	33.11
5.09	6.11	7.13	7.46	8.95	10.44
25.45	30.55	35.64	37.28	44.74	52.19
\$0.1	\$0.2	\$0.2	\$0.2	\$0.3	\$0.3
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.3	\$14.3	\$14.3	\$14.4	\$14.4
219 219	219 219	219 219	292 292	292 292	292 292
\$76	\$91	\$106	\$148	\$178	\$207
117.9	117.9	117.9	80.5	80.5	80.5
\$1.68	\$1.41	\$1.22	\$2.02	\$1.70	\$1.47
\$1.46	\$1.22	\$1.06	\$1.48	\$1.25	\$1.08
\$0.22	\$0.19	\$0.16	\$0.54	\$0.45	\$0.39
\$3,683	<b>\$3,704</b>	\$3,726	\$5,910	\$5,954	\$5,997
\$47,876	\$48,154	\$48,432	\$76,834	\$77,398	\$77,963
\$274,976			\$274,976		,

Car Type: Amdinette Toilet Type: Gravity

Manufacturer:

Number of Passengers: 23 **Number of Toilets:** 2 300.0

Total Tank Capacity (gals):

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152	<del></del>	
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		j
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	12.69	15.23	17.77
Capacity Adjustment:	4.25	5.10	5.95
Total Capacity Required per Day:	21.24	25.49	29,74
Pumpout Labor Cost:	\$0.1	\$0.2	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$74	\$89	\$103
Maximum Continuous Hours of Service:	141.2	141.2	141.2
Total Operating Cost per Service Hour:	\$1.86	\$1.55	\$1.34
- Trip Related:	\$1.45	\$1.22	\$1.05
- Non-Trip Related:	\$0.40	\$0.34	\$0.29
Total per-Car Operating Cost per Year:	\$4,741	\$4,762	\$4,783
Total Fleet Operating Cost per Year:	\$118,520	\$119,051	\$119,582
Total Fleet Capital Cost:	\$528,800		

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
9.89	11.87	13.85	16.48	19.78	23.08
3.55	4.26	4.97	5.20	6.24	7.28
17.74	21.29	24.84	25.98	31.18	36.38
\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.3	\$14.3	\$14.3
219 219	219 219	219 219	292 292	292 292	292 292
\$53	\$63	\$74	\$103	\$124	\$144
169.1	169.1	169.1	115.5	115.5	115.5
\$1.67	\$1.39	\$1.20	\$2.00	\$1.68	\$1.44
\$1.44	\$1.21	\$1.04	\$1.46	\$1.23	\$1.06
\$0.22	\$0.19	\$0.16	\$0.54	\$0.45	\$0.39
\$3,650	\$3,665	\$3,680	\$5,845	\$5,875	\$5,905
\$91,260	\$91,632	\$92,005	\$146,113	\$146,869	\$147,626
\$528,800			\$528,800	·	

Car Type: Amcoach
Toilet Type: Gravity Manufacturer:

Number of Passengers: 60
Number of Toilets: 2
Total Tank Capacity (gals): 300.0

Scenario: Expected

			,
Capital Cost	\$21,152		1
- Equipment:	\$20,000		
- Installation:	\$1,152		
Maintenance Cost:	\$1.032		
- Labor:_	\$432		
- Spare Parts:	\$600		
University Tries	•	10	<b>.</b>
Hours per Trip: Trips per Day:	2 5	12 1	7 2
		•	-
Waste Generation Data	•		
Waste Generated:	11.23	13.47	15.72
Flush Fluid Generated:	33.11	39.73	46.35
Capacity Adjustment:	11.08	13.30	15.52
Total Capacity Required per Day:	55.42	66.50	77.59
· · · · · · · · · · · · · · · · · · ·	337.12	00.00	
Pumpout Labor Cost:	\$0.3	\$0.4	\$0.5
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.5	\$14.6
. Julia : Limpous Glouining Goot por Buy.	Ψ1-11-1	ψ14.0	Ψ14.0
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	255	255	255
•		•	
Waste Disposal Cost per Year:	\$193	\$231	\$270
		•	
Maximum Continuous Hours of Service:	54.1	54.1	54.1
Total Operating Cost per Service Hour:	\$1.92	\$1.62	\$1.40
- Trip Related:	\$1.52	\$1.28	\$1.12
- Non-Trip Related:	\$0.40	\$0.34	\$0.29
Tion Tip Holatos.	ψο.40	ψ0.04	Ψ0.23
Total per-Car Operating Cost per Year:	\$4,912	\$4,967	<b>\$5,000</b>
Total per-oal operating cost per Teal.	φ4,512	φ4,907	\$5,023
Total Fleet Operating Cost per Year:	\$152,263	\$153,982	\$155,700
Total Floor Sportaing Coor por Total.	ψ102,200.	ψ100,302	φ100,700
Total Fleet Capital Cost:	\$655,712		
i otal i logi Gapital Gost.	φωυ,/12		

Favorable		•	Unfavorable		•
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200		t.	\$1,576 \$576 \$1,000		
2 5	12 1	7 2	2 5	12 1	7 2
11,23	13.47	15.72	11.23	13.47	15.72
25.80	30.96	36.12	43.00	51.60	60.20
9.26	11.11	12.96	13.56	16.27	18.98
46.28	55.54	64.79	67.78	81.34	94.89
\$0.3	\$0.3	\$0.4	\$0.4	\$0.5	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.4	\$14.4	\$14.5	\$14.5	\$14.6	\$14.7
219 219	219 219	219 219	292 292	292 292	292 292
\$138	\$165	\$193	\$269	\$323	\$377
64.8	64.8	64.8	44.3	44.3	44.3
\$1.72	\$1.45	\$1.26	\$2.08	\$1.76	\$1.53
\$1.50	\$1.26	\$1.10	\$1.55	\$1.31	\$1.14
\$0.22	\$0.19	\$0.16	\$0.54	\$0.45	\$0.39
\$3,770	\$3,809	\$3,848	\$6,088	\$6,167	\$6,246
\$116,878	\$118,083	\$119,288	\$188,726	\$191,173	\$193,621
\$655,712		<u>.</u>	\$655,712		

Car Type:

Turbo Power Club

Gravity

Manufacturer:

Number of Passengers: 27

Number of Toilets:

Total Tank Capacity (gals): 300.0

Scenario:	Expected
occitatio.	Lxpcotou

oodinano.	Lxpooted		
Capital Cost - Equipment: - Installation:	\$15,864 \$15,000 \$864		
Maintenance Cost: - Labor: - Spare Parts:	\$666 \$216 \$450		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data	·		
Waste Generated;	5.05	6.06	7.07
Flush Fluid Generated:	14.90	17.88	20.86
Capacity Adjustment:	4.99	5.99	6.98
Total Capacity Required per Day:	24.94	29.93	34.91
Pumpout Labor Cost:	\$0.1	\$0.2	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.2	\$8.3	\$8.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$87	\$104	\$121
Maximum Continuous Hours of Service:	120.3	120.3	120.3
Total Operating Cost per Service Hour:	\$1.12	\$0.94	\$0.81
- Trip Related:	\$0.86 <sup>·</sup>	\$0.72	\$0.63
- Non-Trip Related:	\$0.26	\$0.22	\$0.19
Total per-Car Operating Cost per Year:	\$2,860	<b>\$2,885</b>	\$2,910
Total Fleet Operating Cost per Year:	\$17,162	\$17,311	\$17,461
Total Fleet Capital Cost:	\$95,184		

Favorable	,		Unfavorable		
\$15,864 \$15,000 \$864			\$15,864 \$15,000 \$864		
\$294 \$144 \$150			\$1,038 \$288 \$750		
2 5	12 1	7 2	2 5	12 1	7 2
5.05	6.06	7.07	5.05	6.06	7.07
11.61	13.93	16.25	19.35	23.22	27.09
4.17	5.00	5.83	6.10	7.32	8.54
20.83	24.99	29.16	30.50	36.60	42.70
\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.3
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.2	\$8.2	\$8.3	\$8.3	\$8.3	\$8.4
219 219	219 219	219 219	292 292	292 292	292 292
\$62	\$74	\$87	\$121	\$145	\$170
144.0	144.0	144.0	98.4	98.4	98.4
\$0.98	\$0.83	\$0.71	\$1.23	\$1.03	\$0.89
\$0.85	\$0.71	\$0.62	\$0.87	\$0.74	\$0.64
\$0.13	\$0.11	\$0.10	\$0.36	\$0.30	\$0.25
\$2,155	\$2,173	\$2,190	\$3,581	\$3,616	\$3,652
\$12,932	\$13,037	\$13,142	\$21,485	\$21,698	\$21,911
\$95,184			\$95,184		

Car Type:

Turbo Coach

Toilet Type:

Gravity

Manufacturer:

Number of Passengers: Number of Toilets:

2

72

Total Tank Capacity (gals):

300.0

Scenario: Expected

Capital Cost - Equipment: - Installation:	\$21,152 \$20,000 \$1,152	· <del>-</del> · · · · · · · · · · · · · · · · · · ·	
Maintenance Cost: - Labor: - Spare Parts:	\$1,032 \$432 \$600		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	13.47	16.16	18.86
Flush Fluid Generated:	39.73	47.68	55.62
Capacity Adjustment:	13.30	15.96	18.62
Total Capacity Required per Day:	66.50	79.80	93.10
Pumpout Labor Cost:	\$0.4	\$0.5	\$0.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.5	\$14.6	\$14.7
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$231	\$277	\$324
Maximum Continuous Hours of Service:	45.1	45.1	45.1
Total Operating Cost per Service Hour:	\$1.94	\$1.64	\$1.43
- Trip Related:	\$1.54	\$1.31	\$1.14
- Non-Trip Related:	\$0.40	\$0.34	\$0.29
Total per-Car Operating Cost per Year:	\$4,967	\$5,034	\$5,100
Total Fleet Operating Cost per Year:	\$104,310	\$105,707	\$107,104
Total Fleet Capital Cost:	\$444,192		

Favorable			Unfavorable		
\$21,152 \$20,000 \$1,152			\$21,152 \$20,000 \$1,152		
\$488 \$288 \$200			\$1,576 \$576 \$1,000		
2 5	<b>12</b> 1	7 2	2 5	12 1	7 2
13.47	16.16	18.86	13.47	16.16	18.86
30.96	37.15	43.34	51.60	61.92	72.24
11.11	13.33	15.55	16.27	19.52	22.77
55.54	66.65	77.75	81.34	97.61	113.87
\$0.3	\$0.4	\$0.4	\$0.5	\$0.6	\$0.7
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.4	\$14.5	\$14.5	\$14.6	\$14.7	\$14.8
219 219	219 219	219 219	292 292	292 292	292 292
\$165	\$198	\$232	\$323	\$388	\$452
54.0	<sup>^</sup> 54.0	54.0	36.9	36.9	36.9
\$1.74	\$1.47	\$1.27	\$2.11	\$1.79	\$1.55
\$1.52	\$1.28	\$1.11	\$1.57	\$1.34	\$1.17
\$0.22	\$0.19	\$0.16	\$0.54	\$0.45	\$0.39
\$3,809	\$3,856	\$3,902	\$6,167	\$6,262	\$6,356
\$79,991	\$80,971	\$81,950	\$129,504	\$131,494	\$133,483
<b>\$444,</b> 192			\$444,192	2.	·····

Car Type: Turbo Cafe
Toilet Type: Gravity

chot type.

Manufacturer:

Number of Passengers: Number of Toilets:

Total Tank Capacity (gals): 300.0

Scenario:	Expected

	occinano.	LAPOOLOG		
	Capital Cost - Equipment: - Installation:	\$15,864 \$15,000 \$864		
	Maintenance Cost: - Labor: - Spare Parts:	\$666 \$216 \$450		
	Hours per Trip: Trips per Day:	2 5	12 1	7 2
	Waste Generation Data	•		
	Waste Generated:	9.73	11.67	13.62
	Flush Fluid Generated:	28.70	34.43	40.17
	Capacity Adjustment:	9.61	11.53	13.45
!	Total Capacity Required per Day:	48.03	57.64	67.24
)				
	Pumpout Labor Cost:	\$0.3	\$0.3	\$0.4
	Connect/Disconnect Labor Cost:	\$2.1	\$2.1	. \$2.1
	Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
•	Total Pumpout/Cleaning Cost per Day:	\$8.4	\$8.4	\$8.5
	Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
	Waste Disposal Cost per Year:	\$167	\$200	\$234
	Maximum Continuous Hours of Service:	62.5	62.5	62.5
	Total Operating Cost per Service Hour:	\$1.16	\$0.99	\$0.86
	- Trip Related:	\$0.90	\$0.77	\$0.67
	- Non-Trip Related:	\$0.26	\$0.22	\$0.19
	Total per-Car Operating Cost per Year:	\$2,976	\$3,024	\$3,072
	Total Fleet Operating Cost per Year:	\$8,927	\$9,071	\$9,216
	Total Fleet Capital Cost:	\$47,592		
	Total I look Oapital Oosi.	Ψ71,032		

52

Favorable			Unfavorable		
\$15,864 \$15,000 \$864			\$15,864 \$15,000 \$864		···
\$294 \$144 \$150			\$1,038 \$288 \$750		
2 5	12 1	7 2	2 5	12	7 2
9.73	11.67	13.62	9.73	11.67	13.62
22.36	26.83	31.30	37.27	44.72	52.17
8.02	9.63	11.23	11.75	14.10	16.45
40.11	48.13	56.15	58.74	70.49	82.24
\$0.2	\$0.3	\$0.3	\$0.4	\$0.4	\$0.5
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.3	\$8.4	\$8.4	\$8.5	\$8.5	\$8.6 °
219 219	219 219	219 219	292 292	292 292	292 292
\$119	\$143	\$167	\$233	\$280	\$327
74.8	74.8	74.8	51.1	51.1	51.1
\$1.02	\$0.86	\$0.75	\$1.28	\$1.09	\$0.95
\$0.89	\$0.75	\$0.66	\$0.93	\$0.79	\$0.70
\$0.13	\$0.11	\$0.10	\$0.36	\$0.30	\$0.25
\$2,236	\$2,270	\$2,304	\$3,745	\$3,814	\$3,882
\$6,709	\$6,810	\$6,911	\$11,236	\$11,441	\$11,646
\$47,592		į	\$47,592		

Car Type: Turbo Power Coach
Toilet Type: Gravity

Charlypo.

Manufacturer:

Number of Passengers: 40

Number of Toilets: 1
Total Tank Capacity (gals): 300.0

Scenario: Expected

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,864 \$15,000 \$864		
Maintenance Cost: - Labor:	\$666 \$316		
- Spare Parts:	\$216 \$450		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	7.48	8.98	10.48
Flush Fluid Generated:	22.07	26.49	30.90
Capacity Adjustment:	7.39	8.87	10.34
Total Capacity Required per Day:	36.95	44.34	51.72
Pumpout Labor Cost:	\$0.2	\$0.3	\$0.3
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.3	\$8.4	\$8.4
Days Operated per Year: Clean-out Cycles per Year;	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$128	\$154	\$180
Maximum Continuous Hours of Service:	81.2	81.2	81.2
Total Operating Cost per Service Hour:	\$1.14	\$0.96	\$0.84
- Trip Related:	\$0.88	\$0.75	\$0.65
- Non-Trip Related:	\$0.26	\$0.22	\$0.19
Total per-Car Operating Cost per Year:	\$2,920	\$2,957	\$2,994
Total Fleet Operating Cont per Year:	\$40,885	\$41,402	\$41,919
Total Fleet Capital Cost:	\$222,096		

# Microphor

Favorable			Unfavorable		
\$15,864 \$15,000 \$864	,		\$15,864 \$15,000 \$864		
\$294 \$144 \$150			\$1,038 \$288 \$750		
2 5	12 1	7 2	2 5	12 1	7 2
7.48	8.98	10.48	7.48	8.98	10.48
17.20	20.64	24.08	28.67	34.40	40.13
6.17	7.40	8.64	9.04	10.85	12.65
30.85	37.03	43.20	45.19	54.23	63.26
\$0.2	\$0.2	\$0.2	\$0.3	<b>\$0.3</b>	\$0.4
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.3	\$8.3	\$8.3	\$8.4	\$8.4	\$8.5
219 219	219 219	219 219	292 292	<sup>*</sup> 292 292	292 292
\$92	\$110	\$129	\$179	\$215	\$251
97.2	97.2	97.2	66.4	66.4	66.4
\$1.00	\$0.85	\$0.73	\$1.26	\$1.06	\$0.92
\$0.87	\$0.73	\$0.64	\$0.90	\$0.77	\$0.67
\$0.13	\$0.11	\$0.10	<b>\$0.36</b> .	\$0.30	\$0.25
\$2,197	\$2,223	\$2,249	\$3,666	\$3,719	\$3,772
\$30,764	\$31,127	\$31,490	\$51,329	\$52,066	\$52,803
\$222,096			\$222,096		

# **D4** Evac Ultimate

Car Type: Toilet Type: Coach-HEP-HLV

Ultimate

Number of Passengers:

72

Number of Toilets: Total Tank Capacity (gals):

Manufacturer:

200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$26,192 \$23,600 \$2,592		·
Maintenance Cost: - Labor: - Spare Parts:	\$1,572 \$864 \$708		
Hours per Trip: Trips per Day:	. 24	48 1	72 1
Waste Generation Data	•		
Waste Generated:	32.33	64.66	96.98
Flush Fluid Generated:	26.06	52.11	78.17
Capacity Adjustment:	14.60	29.19	43.79
Total Capacity Required per Day:	72.98	145.96	218.94
Pumpout Labor Cost:	\$0.3	\$0.5	\$0.8
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$4.2
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:	\$26.4	\$26.6	\$29.0
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$127	\$169	\$190
Maximum Continuous Hours of Service:	65.8	65.8	65.8
Total Operating Cost per Service Hour:	\$1.65	\$0.98	\$0.79
- Trip Related:	\$1.14	\$0.60	\$0.44
- Non-Trip Related:	\$0.51	\$0.38	\$0.34
Total per-Car Operating Cost per Year:	\$5,066	\$4,008	\$3,613
Total Fleet Operating Cost per Year:	\$106,394	\$84,174	\$75,881
Total Fleet Capital Cost:	\$550,032		

Favorable		•	Unfavorable	÷	
\$26,192 \$23,600 \$2,592			\$26,192 \$23,600 \$2,592		
\$812 \$576 \$236			\$2,332 \$1,152 \$1,180		,*
24 1	48 1	72	24	48 1	72 1
32.33	64.66	96.98	32.33	64.66	96.98
20.30	40.61	60.91	33.84	67.68	101.52
13.16	26.32	39.47	16.54	33.08	49.63
65.79	131.58	197.37	82.71	165.42	248.13
\$0.2	\$0.4	\$0.6	\$0.3	\$0.7 °	\$1.0
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$26.3	\$26.5	\$26.7	\$26.4	\$26.8	\$29.2
219 110	219 73	219 55	292 146	292 97	292 73
\$98	\$131	\$147	\$164	\$219	\$246
73.0	73.0	73.0	58.0	58.0	58.0
\$1.44	\$0.82	\$0.61	\$1.81	\$1.10	\$0.90
\$1.13	\$0.59	\$0.41	\$1.15	\$0.60	\$0.45
\$0.31	\$0.23	\$0.21	\$0.67	\$0.50	\$0.44
\$3,790	\$2,878	\$2,421	\$6,356	\$5,157	\$4,711
\$79,593	\$60,429	\$50,847	\$133,481	\$108,302	\$98,932
\$550,032			\$550,032		

Car Type: Lounge-HEP-HLV

Toilet Type: Ultimate

Manufacturer:

Number of Passengers: 86
Number of Toilets: 2
Total Tank Capacity (gals): 200.0

Scenario: Expected

Capital Cost	\$19,816	<del></del>	
- Equipment:	\$17,800		
- Installation:	\$2,016		
Maintenance Cost:	\$966		
- Labor:	\$432		
- Spare Parts:	\$534		
Hours per_Trip:	24	48	72
Trips per Day:	1	1	1
Waste Generation Data			
Waste Generated:	38.61	77.23	115.84
Flush Fluid Generated:	31.12	• 62.25	93.37
Capacity Adjustment:	17.43	34.87	52.30
Total Capacity Required per Day:	87.17	174.34	261.52
Pumpout Labor Cost:	\$0.3	\$0.6	\$0.9
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.4	\$14.7	\$17.1
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	128	85	64
Waste Disposal Cost per Year:	\$151	\$202	\$227
Maximum Continuous Hours of Service:	55.1	55.1	55.1
Total Operating Cost per Service Hour:	\$0.96	\$0.59	\$0.50
- Trip Related:	\$0.65	\$0.36	\$0.29
- Non-Trip Related:	\$0.32	\$0.24	\$0.21
Total per-Car Operating Cost per Year:	\$2,958	\$2,422	\$2,288
Total Fleet Operating Cost per Year:	\$17,751	\$14,531	\$13,726
Total Fleet Capital Cost:	\$118,896		

Favorable		v	Unfavorable		
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016		
\$466 \$288 \$178			\$1,466 \$576 \$890		
<b>24</b> 1	<b>48</b> 1	72 1	24 1	48 1	72 1
38.61	77.23	115.84	38.61	77.23	115.84
24.25	48.50	72.76	40.42	80.84	121.26
15.72	31.43	47.15	19.76	39.52	59.28
78.58	157.17	235.75	98.79	197.59	296.38
\$0.2	\$0.5	\$0.7	\$0.4	\$0.8	\$1.2
\$2.1	\$2.1	\$4.2	\$2.1	\$2.1	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.3	\$14.6	\$16.9	\$14.5	\$14.9	\$17.4
219 110	219 73	219 55	292 146	292 97	292 73
\$117	\$156	\$176	\$196	\$262	\$294
61.1	61.1	61.1	48.6	48.6	48.6
\$0.82	\$0.48	\$0.40	\$1.08	\$0.68	\$0.58
\$0.64	\$0.35	\$0.28	\$0.66	\$0.37	\$0.30
\$0.18	\$0.13	\$0.12	\$0.42	\$0.31	\$0.28
\$2,154	<b>\$1,687</b>	\$1,568	\$3,780	\$3,179	\$3,031
\$12,921	\$10,120	\$9,410	\$22,679	\$19,072	\$18,188
\$118,896			\$118,896		

Car Type: **Trans Dorm Coach** 

Toilet Type: Ultimate

Number of Passengers: 40 Manufacturer:

Number of Toilets: Total Tank Capacity (gals):

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$26,192 \$23,600 \$2,592		7
Maintenance Cost: - Labor: - Spare Parts:	\$1,572 \$864 \$708		
Hours per Trip: Trips per Day:	24 1	48	72 1
Waste Generation Data	,		
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	14.48	28.95	43.43
Capacity Adjustment:	8.11	16.22	24.33
Total Capacity Required per Day:	40.55	81.09	121.64
Pumpout Labor Cost:	\$0.1	\$0.3	\$0.4
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:	\$26.2	\$26.4	\$26.5
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$70	\$94	\$106
Maximum Continuous Hours of Service:	118.4	118.4	118.4
Total Operating Cost per Service Hour:	\$1.63	\$0.96	\$0.73
- Trip Related:	\$1.12	\$0.57	\$0.39
- Non-Trip Related:	\$0.51	\$0.38	\$0.34
Total per-Car Operating Cost per Year:	\$4,995	\$3,913	\$3,373
Total Fleet Operating Cost per Year:	\$179,828	\$140,884	\$121,411
Total Fleet Capital Cost:	\$942,912		

200.0

Favorable			Unfavorable		
\$26,192 \$23,600 \$2,592			\$26,192 \$23,600 \$2,592		
\$812 \$576 \$236			\$2,332 \$1,152 \$1,180		
24 1	48 1	72 1	24 1	<b>48</b> 1	72 1
17.96	35.92	53.88	17.96	35.92	53.88
11.28	22.56	33.84	18.80	37.60	56.40
7.31	14.62	21.93	9.19	18.38	27.57
36.55	73.10	109.65	45.95	91.90	137.85
\$0.1	\$0.2	\$0.3	\$0.2	\$0.4	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$26.2	\$26.3	\$26.4	\$26.3	\$26.5	\$26.7
219 110	219 73	219 55	292 146	292 97	292 73
\$54	\$73	\$82	\$91	\$122	\$137
131.3	131.3	131.3	104.5	104.5	104.5
\$1.42	\$0.80	\$0.59	\$1.79	\$1.08	\$0.84
\$1.11	\$0.57	\$0.39	\$1.12	\$0.58	\$0.40
\$0.31	\$0.23	\$0.21	\$0.67	\$0.50	\$0.44
\$3,737	\$2,806	\$2,341	\$6,261	\$5,031	\$4,415
\$134,522	\$101,028	\$84,281	\$225,406	\$181,103	\$158,952
\$942,912		-	\$942,912		

Car Type:

Sleeper Super

Toilet Type:

Ultimate

Manufacturer:

Number of Passengers: 44

Number of Toilets: 12

Total Tank Capacity (gals): 200.0

Scenario: Expected

Coonano.	LAPOOLOG		
Capital Cost - Equipment: - Installation:	\$51,696 \$46,800 \$4,896		
Maintenance Cost: - Labor: - Spare Parts:	\$3,996 \$2,592 \$1,404		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data		4,	
Waste Generated:	19.76	39.51	59.27
Flush Fluid Generated:	15.92	31.85	47.77
Capacity Adjustment:	8.92	17.84	26.76
Total Capacity Required per Day:	44.60	89.20	133.80
Pumpout Labor Cost:	\$0.2	\$0.3	\$0.5
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$72.0	\$72.0	\$72.0
Total Pumpout/Cleaning Cost per Day:	\$74.3	\$74.4	\$74.6
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	. \$77	\$103	\$116
Maximum Continuous Hours of Service:	107.6	107.6	107.6
Total Operating Cost per Service Hour:	. \$4.42	\$2.55	\$1.93
- Trip Related:	\$3.12	\$1.58	\$1.06
- Non-Trip Related:	\$1.30	\$0.98	\$0.87
Total per-Car Operating Cost per Year:	\$13,560	\$10,437	\$8,876
Total Fleet Operating Cost per Year:	\$922,087	\$709,736	\$603,560
Total Fleet Capital Cost:	\$3,515,328	<u> </u>	

Favorable			Unfavorable		
\$51,696 \$46,800 \$4,896			\$51,696 \$46,800 \$4,896		
\$2,196 \$1,728 \$468			\$5,796 \$3,456 \$2,340		
24 1	48 1	72	24 1	48 1	72 1
19.76	39.51	59.27	19.76	39.51	59.27
12.41	24.82	37.22	20.68	41.36	62.04
8.04	16.08	24,12	10.11	20.22	30.33
40.21	80.41	120.62	50.55	101.09	151.64
\$0.1	\$0.2	\$0.4	\$0.2	\$0.4	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$72.0	\$72.0	\$72.0	\$72.0	\$72.0	\$72.0
\$74.2	\$74.3	\$74.5	\$74.3	\$74.5	\$74.7
219 110	219 73	219 55	292 146	292 97	292 73
\$60	\$80	\$90	\$100	\$134	\$151
119.4	. 119.4	119.4	95.0	95.0	95.0
\$3.95	\$2.20	\$1.61	\$4.78	\$2.82	\$2.17
\$3.12	\$1.57	\$1.06	\$3.12	\$1.58	\$1.07
\$0.84	\$0.63	\$0.56	\$1.65	\$1.24	\$1.10
\$10,383	\$7,703	\$6,363	\$16,745	\$13,182	\$11,401
\$706,072	\$523,821	\$432,695	\$1,138,671	\$896,408	\$775,277
\$3,515,328			\$3,515,328		

Car Type:

**Bag Coach Super** 

Toilet Type:

Ultimate

Manufacturer:

Number of Passengers: Number of Toilets: 78

number of Tollets.

5

Total Tank Capacity (gals):

200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$29,380 \$26,500 \$2,880		
Maintenance Cost; - Labor: - Spare Parts:	\$1,875 \$1,080 \$795		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	35.02	70.04	105.07
Flush Fluid Generated:	28.23	56.46	84.68
Capacity Adjustment:	15.81	31.63	47.44
Total Capacity Required per Day:	79.06	158.13	237.19
Pumpout Labor Cost:	\$0.3	\$0.6	\$0.8
Connect/Disconnect Labor Cost:	\$2.1	<b>\$2.1</b> ·	\$4.2
Cleaning Labor Cost:	\$30.0	\$30.0	\$30.0
Total Pumpout/Cleaning Cost per Day:	\$32.4	\$32.7	\$35.0
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$137	\$183	\$206
Maximum Continuous Hours of Service:	60.7	60.7	60.7
Total Operating Cost per Service Hour:	\$2.01	\$1.18	\$0.94
- Trip Related:	\$1.39	\$0.73	\$0.53
- Non-Trip Related:	\$0.61	\$0.46	\$0.41
Total per-Car Operating Cost per Year:	\$6,149	\$4,840	\$4,320
Total Fleet Operating Cort per Year:	\$295,162	\$232,324	\$207,344
Total Fleet Capital Cost:	\$1,410,240	٠.	,

Favorable			Unfavorable		
\$29,380 \$26,500 \$2,880			\$29,380 \$26,500 \$2,880	<u> </u>	
\$985 \$720 \$265			\$2,765 \$1,440 \$1,325		
24 1	48 1	72 1	. 24	<b>48</b> 1	72 1
35.02	70.04	105.07	35.02	70.04	105.07
22.00	43.99 ,	65.99	36.66	73.32	109.98
14.25	28.51	42.76	17.92	35.84	53.76
71.27	142.55	213.82	89.60	179.20	268.81
\$0.2	\$0.4	\$0.7	\$0.4	\$0.7	\$1.1
\$2.1	\$2.1	\$4.2	\$2.1	\$2.1	\$4.2
\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
\$32.3	\$32.5	\$34.9	\$32.5	\$32.8	\$35.3
219 110	219 73	219 55	292 146	292 97	292 73
\$106	\$142	\$159	\$178	\$237	\$267
67.3	67.3	67.3	53.6	53.6	53.6
\$1.76	\$1.00	\$0.77	\$2.19	\$1.33	\$1.07
\$1.39	\$0.72	\$0.52	\$1.40	\$0.73	\$0.54
\$0.37	\$0.28	\$0.25	\$0.79	\$0.59	\$0.53
\$4,630	\$3,502	\$3,053	\$7,683	\$6,198	\$5,609
\$222,248	\$168,093	\$146,534	\$368,786	\$297,503	\$269,220
\$1,410,240			\$1.410.240		

Car Type: Coach Super Toilet Type: Ultimate

Number of Passengers: 75 Number of Toilets: 6

Total Tank Capacity (gals): 200.0

> Scenario: **Expected**

Manufacturer:

	LAPOOLOG		
Capital Cost - Equipment: - Installation:	\$32,568 \$29,400 \$3,168		
Maintenance Cost: - Labor: - Spare Parts:	\$2,178 \$1,296 \$882		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	33.68	67.35	101.03
Flush Fluid Generated:	27.14	54.29	81.43
Capacity Adjustment:	15.20	30.41	45.61
Total Capacity Required per Day:	76.02	152.04	228.07
Pumpout Labor Cost:	\$0.3	\$0.5	\$0.8
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$4.2
Cleaning Labor Cost:	\$36.0	\$36.0	\$36.0
Total Pumpout/Cleaning Cost per Day:	\$38.4	\$38.6	\$41.0
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$132	\$176	\$198
Maximum Continuous Hours of Service:	63.1	63.1	63.1
Total Operating Cost per Service Hour:	\$2.35	\$1.38	\$1.09
- Trip Related:	\$1.64	\$0.85	\$0.61
- Non-Trip Related:	\$0.71	\$0.53	\$0.47
Total per-Car Operating Cost per Year:	\$7,212	\$5,645	\$4,996
Total Fleet Orerating Cost per Year:	\$656,295	\$513,712	\$454,628
Total Fleet Capital Cost:	\$2,963,688		

Favorable			Unfavorable		
\$32,568 \$29,400 \$3,168			\$32,568 \$29,400 \$3,168		
\$1,158 \$864 \$294			\$3,198 \$1,728 \$1,470		` •
24 1	48 1	72 1	24 1	48 1	72 1
33.68	67.35	101.03	33.68	67.35	101.03
21.15	42.30	63.45	35.25	70.50	105.75
13.71	27.41	41.12	17.23	34.46	51.69
68.53	137.06	205.59	86.16	172.31	258.47
\$0.2	\$0.4	\$0.6	\$0.4	\$0.7	\$1.1
\$2.1	\$2.1	\$4.2	\$2.1	\$2.1	\$4.2
\$36.0	\$36.0	\$36.0	\$36.0	\$36.0	\$36.0
\$38,3	\$38.5	\$40.8	\$38.5	\$38.8	\$41.3
219 110	219 73	219 55	292 146	292 97	292 73
\$102	\$136	\$153	\$171	\$228	\$257
70.0	70.0	70.0	55.7	55.7	55.7
\$2.08	\$1.17	\$0.90	\$2.56	\$1.54	\$1.23
\$1.64	\$0.84	\$0.61	\$1.65	\$0.86	\$0.62
\$0.44	\$0.33	\$0.29	\$0.91	\$0.68	\$0.61
\$5,455	\$4,106	\$3,547	\$8,983	\$7,203	\$6,466
\$496,420	\$373,669	\$322,756	\$817,465	\$655,484	\$588,443
\$2,963,688			\$2,963,688	· .	

Car Type: Horizon
Toilet Type: Ultimate

Number of Passengers: Number of Toilets:

Total Tank Capacity (gals): 200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	18.41	36.82	73.64
Flush Fluid Generated:	14.84	29.68	59.35
Capacity Adjustment:	8.31	16.62	33.25
Total Capacity Required per Day:	41.56	83.12	166.23
Pumpout Labor Cost:	\$0.1	\$0.3	\$0.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.4	\$14.7
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	· \$144	\$144	\$193
Maximum Continuous Hours of Service:	57.7	57.7	57.7
Total Operating Cost per Service Hour:	\$1.55	\$0.96	\$0.59
- Trip Related:	\$1.23	\$0.65	\$0.35
- Non-Trip Related:	\$0.32	\$0.32	\$0.24
Total per-Car Operating Cost per Year:	\$4,751	\$2,950	\$2,410
Tctal Fleet Operating Cost per Year:	\$489,339	\$303,808	\$248,224
Total Fleet Capital Cost:	\$2,041,048		

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2

Manufacturer:

#### **Favorable** Unfavorable. \$19,816 \$19,816 \$17,800 \$17,800 \$2,016 \$2,016 \$466 \$1,466 \$576 \$890 \$288 \$178 12 24 48 12 24 48 18.41 36.82 73.64 18.41 36.82 73.64 11.56 23.12 46.25 38.54 19.27 77.08 7.49 14.99 29.97 9.42 18.84 37.68 37.46 74.93 149.86 47.10 94.20 188.40 \$0.1 \$0.2 \$0.5 \$0.2 \$0.4 \$0.8 \$2.1 \$2.1 \$2.1 \$2.1 \$2.1 \$2.1 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$14.2 \$14.3 \$14.6 \$14.3 \$14.5 \$14.9 219 219 219 292 292 292 219 73 292 110 146 97 \$112 \$112 \$149 \$187 \$187 \$249 64.1 64.1 64.1 51.0 51.0 51.0 \$1.40 \$0.82 \$0.48 \$1.66 \$1.08 \$0.68 \$1.23 \$0.64 \$0.35 \$1.24 \$0.66 \$0.36 \$0.18 \$0.18 \$0.13 \$0.42 \$0.42 \$0.31 \$3,691 \$2,147 \$1,678 \$5,827 \$3,768 \$3,163 \$380,153 \$221,126 \$172,817 \$600,130 \$388,094 \$325,769 \$2,041,048 \$2,041,048

Car Type: Coach Toilet Type: Ultimate

Number of Passengers: 48
Number of Toilets: 2
Total Tank Capacity (gals): 200.0

Scenario:	⊨xpected
•	
Canital Cost	\$19.816

Trips per Day:       1       1         Waste Generation Data       1       1         Waste Generated;       10.78       21.55       43.1         Flush Fluid Generated:       8.69       17.37       34.7         Capacity Adjustment:       4.87       9.73       19.4         Total Capacity Required per Day:       24.33       48.65       97.3         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       255       255       25         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$0.32       \$0.32       \$0.32         Non-Trip Related:       \$0.32       \$0.32       \$0.32         Total per-Car Operating Cost per Ye	Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Trips per Day:       1       1         Waste Generation Data       10.78       21.55       43.1         Flush Fluid Generated:       8.69       17.37       34.7         Capacity Adjustment:       4.87       9.73       19.4         Total Capacity Required per Day:       24.33       48.65       97.3         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.         Connect/Disconnect Labor Cost:       \$12.0       \$12.0       \$12.         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       255       255       25         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$0.32       \$0.32       \$0.32         Non-Trip Related:       \$0.32       \$0.32       \$0.32         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30 <td>- Labor:</td> <td>\$432</td> <td></td> <td></td>	- Labor:	\$432		
Waste Generated;       10.78       21.55       43.1         Flush Fluid Generated:       8.69       17.37       34.7         Capacity Adjustment:       4.87       9.73       19.4         Total Capacity Required per Day:       24.33       48.65       97.3         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       255       255       25         Clean-out Cycles per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$0.32       \$0.32       \$0.32         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Hours per Trip: Trips per Day:	12 1	24	48 1
Flush Fluid Generated:       8.69       17.37       34.7         Capacity Adjustment:       4.87       9.73       19.4         Total Capacity Required per Day:       24.33       48.65       97.3         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25       25         Clean-out Cycles per Year:       255       255       25       8         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$0.32       \$0.32       \$0.32         Non-Trip Related:       \$0.32       \$0.32       \$0.32         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Waste Generation Data			
Capacity Adjustment:       4.87       9.73       19.4         Total Capacity Required per Day:       24.33       48.65       97.3         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25       25         Clean-out Cycles per Year:       255       255       128       8         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.32         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Waste Generated:	10.78	21.55	43.10
Total Capacity Required per Day:       24.33       48.65       97.3         Pumpout Labor Cost:       \$0.1       \$0.2       \$0.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25       25         Clean-out Cycles per Year:       255       255       25       8         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.32         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Flush Fluid Generated:	8.69	17.37	34.74
Pumpout Labor Cost:       \$0.1       \$0.2       \$0.         Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.         Cleaning Labor Cost:       \$12.0       \$12.0       \$12.         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       255       128       8         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.2         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Capacity Adjustment:	4.87	9.73	19.46
Connect/Disconnect Labor Cost:       \$2.1       \$2.1       \$2.1       \$12.0       \$14.2       \$14.2       \$14.3       \$14.2       \$14.2       \$14.2       \$14.3       \$14.2       \$14.2       \$14.3       \$14.2 <t< td=""><td>Total Capacity Required per Day:</td><td>24.33</td><td>48.65</td><td>97.31</td></t<>	Total Capacity Required per Day:	24.33	48.65	97.31
Cleaning Labor Cost:       \$12.0       \$12.0       \$12.0         Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       255       128       8         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.2         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Pumpout Labor Cost:	\$0.1	\$0.2	\$0.3
Total Pumpout/Cleaning Cost per Day:       \$14.2       \$14.3       \$14.         Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       255       128       8         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.2         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Connect/Disconnect Labor Cost:	్ట్ \$2.1	\$2.1	\$2.1
Days Operated per Year:       255       255       25         Clean-out Cycles per Year:       \$85       \$85       \$11         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.2         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Clean-out Cycles per Year:       255       128       8         Waste Disposal Cost per Year:       \$85       \$85       \$11         Maximum Continuous Hours of Service:       98.7       98.7       98.         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.2         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.4
Maximum Continuous Hours of Service:       98.7       98.7       98.7         Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.2         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Days Operated per Year: Clean-out Cycles per Year:			255 85
Total Operating Cost per Service Hour:       \$1.52       \$0.94       \$0.5         - Trip Related:       \$1.21       \$0.62       \$0.3         - Non-Trip Related:       \$0.32       \$0.32       \$0.2         Total per-Car Operating Cost per Year:       \$4,675       \$2,874       \$2,30	Waste Disposal Cost per Year:	\$85	\$85	\$113
- Trip Related: \$1.21 \$0.62 \$0.3 - Non-Trip Related: \$0.32 \$0.32 \$0.2 Total per-Car Operating Cost per Year: \$4,675 \$2,874 \$2,30	Maximum Continuous Hours of Service:	98.7	98.7	98.7
- Non-Trip Related: \$0.32 \$0.32 \$0.2  Total per-Car Operating Cost per Year: \$4,675 \$2,874 \$2,30	Total Operating Cost per Service Hour:	\$1.52	\$0.94	\$0.56
Total per-Car Operating Cost per Year: \$4,675 \$2,874 \$2,30	- Trip Related:	\$1.21	\$0.62	\$0.33
	- Non-Trip Related:	\$0.32	\$0.32	\$0.24
Total Fleet Operating Cost per Year: \$367,671 \$224,172 \$180,11	Total per-Car Operating Cost per Year:	\$4,675	\$2,874	\$2,309
I	Total Fleet Operating Cost per Year:	\$36 7,671	\$224,172	\$180,114
Total Fleet Capital Cost: \$1,545,648	Total Fleet Capital Cost:	\$1,545,648		

Manufacturer:

Favorable			Unfavorable		
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016		·
\$466 \$288 \$178			\$1,466 \$576 \$890		
12 1	24 1	48	12	24 1	<b>48</b> 1
10.78	21.55	43.10	10.78	21.55	43.10
6.77	13.54	27.07	11.28	22.56	45.12
4.39	8.77	17.54	5.51	11.03	22.06
21.93	43.86	87.72	27.57	55.14	110.28
\$0.1	\$0.1	\$0.3	\$0.1	\$0.2	\$0.5
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.4	\$14.2	\$14.3	\$14.6
219 219	219 110	219 73	292 292	292 146	292 97
\$65	\$65	\$87	\$109	\$109	\$146
109.4	109.4	109.4	87.1	87.1	87.1
\$1.38	\$0.80	\$0.46	\$1.63	\$1.05	\$0.65
\$1.21	\$0.62	\$0.32	\$1.22	\$0.63	\$0.33
\$0.18	\$0.18	\$0.13	\$0.42	\$0.42	\$0.31
\$3,634	\$2,090	\$1,602	\$5,726	\$3,667	\$3,028
\$283,455	\$163,027	\$124,968	\$446,599	\$286,028	\$236,207
\$1,545,648			\$1,545,648		

Car Type: Coach (HDCP)

Toilet Type: Ultimate Manufacturer:

Number of Passengers: 44
Number of Toilets: 3

Total Tank Capacity (gals): 200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$23,004 \$20,700 \$2,304		
Maintenance Cost: - Labor: - Spare Parts:	\$1,269 \$648 \$621		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	9.88	19.76	39.51
Flush Fluid Generated:	7.96	15.92	31.85
Capacity Adjustment:	4.46	8.92	17.84
Total Capacity Required per Day:	22.30	44.60	89.20
Pumpout Labor Cost:	\$0.1	\$0.2	\$0.3
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$18.0	\$18.0	\$18.0
Total Pumpout/Cleaning Cost per Day:	\$20.2	\$20.3	\$20.4
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$77	\$77	\$103
Maximum Continuous Hours of Service:	107.6	107.6	107.6
Total Operating Cost per Service Hour:	\$2.12	\$1,28	\$0.76
- Trip Related:	\$1.71	\$0.87	\$0.45
- Non-Trip Related:	\$0.41	\$0.41	\$0.31
Total per-Car Operating Cost per Year:	\$6,502	\$3,935	\$3,111
Total Fleet Operating Cost per Year:	\$136,550	\$82,627	\$65,337
Total Fleet Capital Cost:	\$483,084		

Favorable			Unfavorable		
\$23,004 \$20,700 \$2,304		,	\$23,004 \$20,700 \$2,304		ч
\$639 \$432 \$207			\$1,899 \$864 \$1,035		
12 1	24 1	48	12 1	24 1	48 1
9.88	19.76	39.51	9.88	19.76	39.51
6.20	12.41	24.82	10.34	20.68	41.36
4.02	8.04	16.08	5.05	10.11	20.22
20.10	40.21	80.41	25.27	50.55	101.09
\$0.1	\$0.1	\$0.2	\$0.1	\$0.2	\$0.4
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$18.0	\$18.0	\$18.0	\$18.0	\$18.0	\$18.0
\$20.2	\$20.2	\$20.3	\$20.2	\$20.3	\$20.5
219 219	219 110	219 73	292 292	292 146	292 97
\$60	\$60	\$80	\$100	\$100	\$134
119.4	119.4	119.4	95.0	95.0	95.0
\$1.95	\$1.11	\$0.63	\$2.25	\$1.42	\$0.86
\$1.70	\$0.87	\$0.45	\$1.71	\$0.87	\$0.46
\$0.24	\$0.24	\$0.18	\$0.54	\$0.54	\$0.41
\$5,114	\$2,913	\$2,204	\$7,899	\$4,964	\$4,029
\$107,402	\$61,182	\$46,289	\$165,874	\$104,247	\$84,619
\$483,084			\$483,084		

Car Type: Dome Coach Toilet Type: Ultimate

Number of Passengers:

46 **Number of Toilets:** 2 Total Tank Capacity (gals): 200.0

> Scenario: **Expected**

Manufacturer:

Lxpected		
\$19,816 \$17,800 \$2,016		·
\$966 \$432 \$534		
12 1	24 1	<b>48</b> 1
10.33	20.65	41.31
8.32	16.65	33.29
4.66	9.33	18.65
23.31	46.63	93.25
\$0.1	\$0.2	\$0.3
\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0
\$14.2	\$14.3	\$14.4
255 255	255 128	255 85
\$81	\$81	\$108
102.9	102.9	102.9
\$1.52	\$0.94	\$0.56
\$1.21	\$0.62	\$0.33
\$0.32	\$0.32	\$0.24
\$4,671	\$2,870	\$2,303
\$56,050	\$34,435	\$27,639
\$237,792		
	\$19,816 \$17,800 \$2,016 \$966 \$432 \$534 12 1 1 10.33 8.32 4.66 23.31 \$0.1 \$2.1 \$12.0 \$14.2 255 255 \$81 102.9 \$1.52 \$1.21 \$0.32 \$4,671 \$56,050	\$19,816 \$17,800 \$2,016 \$966 \$432 \$534 12 24 1 1 10.33 20.65 8.32 16.65 4.66 9.33 23.31 46.63 \$0.1 \$0.2 \$2.1 \$2.1 \$12.0 \$12.0 \$14.2 \$14.3 255 255 255 128 \$81 \$81 102.9 \$1.52 \$0.94 \$1.52 \$0.94 \$1.21 \$0.62 \$0.32 \$0.32 \$4,671 \$2,870 \$56,050 \$34,435

Favorable			Unfavorable		
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016		
\$466 \$288 \$178	÷		\$1,466 \$576 \$890		
12 1	24 1	48	12 1	· 24 1	48 1
10.33	20.65	41.31	10.33	20.65	41.31
6.49	12.97	25.94	10.81	21.62	43.24
4.20	8.41	16.81	5.28	10.57	21.14
21.02	42.03	84.07	26.42	52.84	105.69
\$0.1	\$0.1	\$0.3	\$0.1	\$0.2	\$0.4
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.4	\$14.2	\$14.3	\$14.5
219 219	219 110	219 73	292 292	292 146	292 97
\$63	\$63	\$83	\$105	\$105	\$140
114.2	114.2	. 114.2	90.8	90.8	90.8
\$1.38	\$0.79	\$0.46	\$1.63	\$1.04	\$0.65
\$1.20	\$0.62	\$0.32	\$1.21	\$0.63	\$0.33
\$0.18	\$0.18	\$0.13	\$0.42	\$0.42	\$0.31
\$3,631	\$2,087	\$1,598	\$5,720	\$3,661	\$3,020
\$43,568	\$25,041	\$19,172	\$68,636	\$43,933	\$36,245
\$237,792			\$237,792		

Car Type: Amlounge II

Toilet Type: Ultimate

**Number of Toilets:** 

**Total Fleet Capital Cost:** 

Number of Passengers: 49

Manufacturer:

Total Tank Capacity (gals): 200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated;	11.00	22.00	44.00
Flush Fluid Generated:	8.87	17.73	35.47
Capacity Adjustment:	4.97	9.93	19.87
Total Capacity Required per Day:	24.83	49.67	99.34
Pumpout Labor Cost:	\$0.1	· \$0.2	\$0.4
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.3	\$14.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$86	\$86	\$115
Maximum Continuous Hours of Service:	96.6	96.6	96.6
Total Operating Cost per Service Hour:	\$1.53	\$0.94	\$0.57
- Trip Related:	\$1,21	\$0.62	\$0.33
- Non-Trip Related:	\$0.32	\$0.32	\$0.24
Total per-Car Operating Cost per Year:	\$4,677	\$2,876	\$2,312
Total Fleet Operating Cost per Year:	\$116,937	\$71 <u>,</u> 906	\$57,803
Takal Floor Control Control	4405 445		

\$495,400

2

#### **Favorable** Unfavorable \$19,816 \$19,816 \$17,800 \$17,800 \$2,016 \$2,016 \$466 \$1,466 \$288 \$576 \$890 \$178 12 24 48 12 24 48 11.00 22.00 44.00 11.00 22.00 44.00 6.91 13.82 27.64 11.52 23.03 46.06 4.48 17.91 8.95 5.63 11.26 22.52 22.39 89.55 28.14 44.77 56.29 112.58 \$0.1 \$0.1 \$0.3 \$0.1 \$0.2 \$0.5 \$2.1 \$2.1 \$2.1 \$2.1 \$2.1 \$2.1 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$14.2 \$14.2 \$14.4 \$14.2 \$14.3 \$14.6 219 219 219 292 292 292 219 110 73 292 146 97 \$67 \$67 \$89 \$112 \$112 \$149 107.2 107.2 107.2 85.3 85.3 85.3 \$1.38 \$0.80 \$0.46 \$1.63 \$1.05 \$0.65 \$1.21 \$0.62 \$0.32 \$1.22 \$0.63 \$0.34 \$0.18 \$0.18 \$0.13 \$0.42 \$0.42 \$0.31 \$3,636 \$2,092 \$1,604 \$5,729 \$3,670 \$3,032 \$90,893 \$52,294 \$40,109 \$143,215 \$91,750 \$75,806 \$495,400

\$495,400

Car Type:

Sleeper 10-6

Toilet Type:

Ultimate

Manufacturer:

Number of Passengers: 22
Number of Toilets: 17
Total Tank Capacity (gals): 200.0

Scenario:	Expected		•
Capital Cost - Equipment: - Installation:	\$67,636 \$61,300 \$6,336		
Maintenance Cost: - Labor: - Spare Parts:	\$5,511 \$3,672 \$1,839		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	4.94	9.88	19.76
Flush Fluid Generated:	3.98	7.96	15.92
Capacity Adjustment:	2.23	4.46	8.92
Total Capacity Required per Day:	11.15	22.30	44.60
Pumpout Labor Cost:	\$0.0	\$0.1	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$102.0	\$102.0	\$102.0
Total Pumpout/Cleaning Cost per Day:	\$104.1	\$104.2	\$104.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$39	\$39	\$52
Maximum Continuous Hours of Service:	215.2	215.2	215.2
Total Operating Cost per Service Hour:	\$10.49	\$6.15	\$3.53
- Trip Related:	\$8.69	\$4.35	\$2.18
- Non-Trip Related:	\$1.80	\$1.80	\$1.35
Total per-Car Operating Cost per Year:	\$32,157	\$18,859	\$14,442
Total Fleet Operating Cost per Year:	\$2,636,912	\$1,546,413	\$1,184,250
Total Fleet Capital Cost:	\$5,546,152		

Favorable			Unfavorable		
\$67,636 \$61,300 \$6,336			\$67,636 \$61,300 \$6,336		
\$3,061 \$2,448 \$613			\$7,961 \$4,896 \$3,065		-
12 1	24 1	48 1	12 1	24 1	48 1
4.94	9.88	19.76	4.94	9.88	19.76
3.10	6.20	12.41	5.17	10.34	20.68
2.01	4.02	8.04	2.53	5.05	10.11
10.05	20.10	40.21	· 12.64	25.27	50.55
\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$104.1	\$104.2	\$104.2	\$104.2	\$104.2	\$104.3
219 219	219 110	219 73	292 292	292 146	292 97
\$30	\$30	\$40	\$50	\$50	\$67
238.8	238.8	238.8	189.9	189.9	189.9
\$9.8 <b>5</b>	\$5.52	\$3.06	\$10.97	\$6.63	\$3.89
\$8.69	\$4.35	\$2.18	\$8.69	\$4.36	\$2.19
\$1.16	\$1.16	\$0.87	\$2.27	\$2.27	\$1.70
\$25,896	\$14,497	\$10,709	\$38,423	\$23,225	\$18,180
\$2,123,442	\$1,188,728	\$878,160	\$3,150,725	\$1,904,440	\$1,490,796
\$5,546,152			\$5,546,152		

Car Type: Amcoach II
Toilet Type: Ultimate

Number of Passengers: 59
Number of Toilets: 2

Manufacturer:

Total Tank Capacity (gals): 200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	26.49	52.98	79.47
Flush Fluid Generated:	21.35	42.70	64.06
Capacity Adjustment:	11.96	23.92	35.88
Total Capacity Required per Day:	59.80	119.61	179.41
Pumpout Labor Cost:	\$0.2	\$0.4	\$0.6
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.3	\$14.5	\$14.7
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$104	\$139	\$156
Maximum Continuous Hours of Service:	80.3	80.3	80.3
Total Operating Cost per Service Hour:	\$0.95	\$0.57	\$0.45
- Trip Related:	\$0.63	\$0.34	\$0.24
- Non-Trip Related:	\$0.32	\$0.24	\$0.21
Total per-Car Operating Cost per Year:	\$2,898	\$2,342	\$2,063
Total Fleet Operating Cost per Year:	\$344,916	\$278,669	\$245,546
Total Fleet Capital Cost:	\$2,358,104		

Favorable			Unfavorable		
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016		
\$466 \$288 \$178			\$1,466 \$576 \$890	•	
24 1	48 1	72 1	24 1	<b>48</b> 1	72 1
26.49	52.98	79.47	26.49	52.98	79.47
16.64	33.28	49.91	27.73	55.46	83.19
10.78	21.56	32.35	13.56	27.11	40.67
53.91	107.82	161.73	67.78	135.55	203.33
\$0.2	\$0.3	\$0.5	.\$0.3	\$0.6	\$0.8
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.3	\$14.4	\$14.6	\$14.4	\$14.7	\$17.0
219 110	219 73	219 55	292 146	292 97	292 73
\$80	\$107	\$120	\$135	\$179	\$202
89.0	89.0	89.0	70.8	70.8	70.8
\$0.80	\$0.46	\$0.35	\$1.06	\$0.66	\$0.55
\$0.62	\$0.33	\$0.23	\$0.64	\$0.34	\$0.27
\$0.18	\$0.13	\$0.12	\$0.42	\$0.31	\$0.28
\$2,108	\$1,627	\$1,386	\$3,700	\$3,072	\$2,911
\$250,906	\$193,570	\$164,902	\$440,260	\$365,546	\$346,432
\$2,358,104			\$2,358,104	,	

Car Type: Slumbercoach 24-8

Toilet Type: Ultimate

Number of Passengers: 40

Number of Toilets: 32

Total Tank Capacity (gals): 200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$115,456 \$104,800 \$10,656		
Maintenance Cost:  - Labor: - Spare Parts:	\$10,056 \$6,912 \$3,144		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	14.48	28.95	43.43
Capacity Adjustment:	8.11	16.22	24.33
Total Capacity Required per Day:	40.55	81.09	121.64
Pumpout Labor Cost:	\$0.1	\$0.3	\$0.4
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$192.0	\$192.0	\$192.0
Total Pumpout/Cleaning Cost per Day:	\$194.2	\$194.4	\$194.5
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$70	\$94	\$106
Maximum Continuous Hours of Service:	118.4	118.4	118.4
Total Operating Cost per Service Hour:	\$11.40	\$6.53	\$4.91
- Trip Related:	\$8.12	\$4.07	\$2.72
- Non-Trip Related:	\$3.28	\$2.46	\$2.19
Total per-Car Operating Cost per Year:	\$34,941	\$26,705	\$22,588
Total Fleet Operating Cost per Year:	\$559,059	\$427 <b>,2</b> 87	\$361,401
Total Fleet Capital Cost:	\$1,847,296		

Manufacturer:

Favorable			Unfavorable		
\$115,456 \$104,800 \$10,656			\$115,456 \$104,800 \$10,656	· ,	
\$5,656 \$4,608 \$1,048			\$14,456 \$9,216 \$5,240		
24 1	48 1	72 1	24 1	48 1	72 1
17.96	35.92	53.88	17.96	35.92	53.88
11.28	22.56	33.84	18.80	37.60	56.40
7.31	14.62	21.93	9.19	18.38	27.57
36.55	73.10	109.65	45.95	91.90	137.85
\$0.1	\$0.2	\$0.3	\$0.2	\$0.4	\$0.6
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$192.0	\$192.0	\$192.0	\$192.0	\$192.0	\$192.0
\$194.2	\$194.3	\$194.4	\$194.3	\$194.5	\$194.7
219 110	219 73	219 55	292 146	292 97	292 73
\$54	\$73	\$82	\$91	\$122	\$137
131.3	131.3	131.3	104.5	104.5	104.5
\$10.27	\$5.68	\$4.16	\$12.25	\$7.17	\$5.48
\$8.11	\$4.07	\$2.72	\$8.12	\$4.08	\$2.73
\$2.15	\$1.61	\$1.43	\$4.13	\$3.09	\$2.75
\$26,977	\$19,914	\$16,383	\$42,913	\$33,507	\$28,803
\$431,628	\$318,629	\$262,130	\$686,613	\$536,106	\$460,853
\$1,847,296		· .	\$1,847,296		

Viewliner-Sleeper Car Type: **Toilet Type:** Ultimate Manufacture Number of Passengers: 34 Number of Toilets: 17 Total Tank Capacity (gals): 200.0 Scenario: Expected Capital Cost \$67,636 \$61,300 Equipment: - Installation: \$6,336 Maintenance Cost: \$5,511 - Labor: \$3,672 - Spare Parts: \$1,839 Hours per Trip: 24 48 72 Trips per Day: Waste Generation Data Waste Generated: 15.27 30.53 45.80 Flush Fluid Generated: 12.30 24.61 36.91 Capacity Adjustment: 6.89 13.79 20:68 Total Capacity Required per Day: 34.46 68.93 103.39 **Pumpout Labor Cost:** \$0.1 \$0.2 \$0.4 Connect/Disconnect Labor Cost: \$2.1 \$2.1 \$2.1 Cleaning Labor Cost: \$102.0 \$102.0 \$102.0 Total Pumpout/Cleaning Cost per Day: \$104.2 \$104.3 \$104.5 Days Operated per Year: 255 255 255 Clean-out Cycles per Year: 128 85 64 Waste Disposal Cost per Year: \$60 \$80 \$90

139.3 Maximum Continuous Hours of Service: 139.3 139.3 Total Operating Cost per Service Hour: \$6.16 \$3.54 \$2.67 - Trip Related: \$4.36 \$2.19 \$1.47 Non-Trip Related: \$1.80 \$1.35 \$1.20 Total per-Car Operating Cost per Year: \$18,885 \$14,478 \$12,274 Total Fleet Operating Cost par Year: \$37,771 \$28,955 \$24,548 **Total Fleet Capital Cost:** \$135,272

: Evac

\$135,272

Favorable			Unfavorable	i	
\$67,636 \$61,300 \$6,336			\$67,636 \$61,300 \$6,336		
\$3,061 \$2,448 \$613			\$7,961 \$4,896 \$3,065		
24 1	48 1	72	24 1	48 1	72 1
15.27	30.53	45.80	15.27	30.53	45.80
9.59	19.18	28.76	15.98	31.96	47.94
6.21	12.43	18.64	7.81	15.62	23.43
31.07	62.14	93.20	39.06	78.12	117.17
\$0.1	\$0.2	\$0.3	\$0.2	\$0.3	\$0.5
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$104.2	\$104.3	\$104.4	\$104.3	\$104.4	\$104.6
219 110	219 73	219 55	292 146	292 97	292 73
\$46	\$62	. \$69	\$78	\$103	\$116
154.5	154.5	154.5	122.9	122.9	122.9
\$5.52	\$3.06	\$2.24	\$6.64	\$3.90	\$2.99
\$4.36	\$2.19	\$1.47	\$4.37	\$2.20	\$1.47
\$1.16	\$0.87	\$0.78	\$2.27	\$1.70	\$1.51
\$14,517	\$10,736	\$8,846	\$23,260	\$18,228	\$15,712
\$29,033	\$21,472	\$17,691	\$46,521	\$36,456	\$31,423

\$135,272

Car Type: **Amcafe** Manufacturer: Toilet Type: I litimate Number of Passengers: 53 Number of Toilets: 2 Total Tank Capacity (gals): 200.0 Scenario: **Expected** Capital Cost \$19,816 \$17,800 - Equipment: - Installation: \$2.016 Maintenance Cost: \$966 - Labor: \$432 - Spare Parts: \$534 Hours per Trip: 16 .24 Trips per Day: Waste Generation Data Waste Generated: 15.86 15.86 23.80 Flush Fluid Generated: 12.79 12.79 19.18 Capacity Adjustment: 7 16 7 16 10.74 Total Capacity Required per Day: 35.81. 35.81 53.72 \$0.1 \$0.1 \$0.2 Pumpout Labor Cost: \$2.1 \$2.1 Connect/Disconnect Labor Cost: \$2.1 \$12.0 Cleaning Labor Cost: \$12.0 \$12.0 Total Pumpout/Cleaning Cost per Day: \$14.2 \$14.2 \$14.3 255 Days Operated per Year: 255 255 Clean-out Cycles per Year: 128

Waste Disposal Cost per Year: \$124 \$124 \$93 Maximum Continuous Hours of Service: 89.3 89.3 89.3 Total Operating Cost per Service Hour: \$1.16 \$1.16 \$0.94 - Trip Related: \$0.92 \$0.92 \$0.63 - Non-Trip Related: \$0.24 \$0.32 \$0.24 Total per-Car Operating Cost per Year: \$4,726 \$4,726 \$2,885 Total Fleet Operating Cost per Year: \$212,655 \$212,655 \$129,830 **Total Fleet Capital Cost:** \$891,720

Favorable			Unfavorable		
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016	_	
\$466 \$288 \$178			\$1,466 \$576 \$890		
8 2	16 1	24	8 2	16 1	24 1
15.86	15.86	23.80	15.86	15.86	23.80
9.96	9.96	14.95	16.61	16.61	24.91
6.46	6.46	9.69	8.12	8.12	12.18
32.29	32.29	48.43	40.59	40.59	60.88
\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.3	\$14.3	\$14.3
219 219	. 219 219	219 110	292 292	292 292	292 146
\$96	\$96	\$72	\$161	\$161	\$121
99.1	99.1	99.1	78.8	78.8	78.8
\$1.05	\$1.05	\$0.80	\$1.24	\$1.24	\$1.05
\$0.91	\$0.91	\$0.62	\$0.93	\$0.93	\$0.63
\$0.13	\$0.13	\$0.18	\$0.31	\$0.31	\$0.42
\$3,672	\$3,672	\$2,098	\$5,793	\$5,793	\$3,682
<b>\$165,235</b>	\$165,235	\$94,430	\$260,680	\$260,680	\$165,684
\$891,720	· i · · · · · · · · · · · · · · · · · ·		\$891,720		

Tota: Fleet Operating Cost per Year:

**Total Fleet Capital Cost:** 

Amcoach Car Type: Toilet Type: Ultimate Manufacturer: Number of Passengers: 84 Number of Toilets: 2 200.0 Total Tank Capacity (gals): Scenario: **Expected** Capital Cost \$19,816 - Equipment: \$17,800 - Installation: \$2,016 Maintenance Cost: \$966 - Labor: \$432 - Spare Parts: \$534 16 Hours per Trip: 8 24 Trips per Day: 2 Waste Generation Data Waste Generated: 25.14 25.14 37.72 Flush Fluid Generated: 20.27 30.40 20.27 11.35 11.35 17.03 Capacity Adjustment: Total Capacity Required per Day: 56.76 56.76 85.14 \$0.3 **Pumpout Labor Cost:** \$0.2 \$0.2 Connect/Disconnect Labor Cost: \$2.1 \$2.1 \$2.1 Cleaning Labor Cost: \$12.0 \$12.0 \$12.0 Total Pumpout/Cleaning Cost per Day: \$14.3 \$14.3 \$14.4 Days Operated per Year: 255 255 255 255 128 255 Clean-out Cycles per Year: Waste Disposal Cost per Year: \$197 \$197 \$148 Maximum Continuous Hours of Service: 56.4 56.4 56.4 Total Operating Cost per Service Hour: \$1.18 \$0.96 \$1.18 - Trip Related: \$0.94 \$0.94 \$0.65 - Non-Trip Related: \$0.24 \$0.24 \$0.32 Total per-Car Operating Cost per Year: \$4,818 \$4,818 \$2,954

\$1,281,474

\$5,271,056

\$1,251,474

\$785,775

Favorable			Unfavorable			
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016			
\$466 \$288 \$178			\$1,466 \$576 \$890			
8 2	16 1	<b>24</b> 1	8 2	16 1	24 1	
25.14	25.14	37.72	25.14	25.14	37.72	
15.79	15.79	23.69	26.32	26.32	39.48	
10.23	10.23	15.35	12.87	12.87	19.30	
51.17	51.17	76.76	64.33	64.33	96.50	
\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.4	
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	
\$14.3	\$14.3	\$14.3	\$14.4	\$14.4	\$14.5	
219 219	219 219	219 110	292 292	292 292	292 146	
\$152	\$152	\$114	\$255	\$255	\$192	
62.5	62.5	62.5	49.7	49.7	49.7	
\$1.07	\$1.07	\$0.82	\$1.27	\$1.27	\$1.08	
\$0.93	\$0.93	\$0.64	\$0.95	\$0.95	\$0.66	
\$0.13	\$0.13	\$0.18	\$0.31	\$0.31	\$0.42	
\$3,741	\$3,741	\$2,150	\$5,916	<b>\$5,</b> 916	\$3,774	
\$995,077	\$995,077	\$571,951	\$1,573,529	\$1,573,529	\$1,003,842	
\$5,271,056		1	\$5.271.056		, •	

Car Type: Amclub

Toilet Type: Ultimate

Number of Passengers: 41
Number of Toilets: 2

Total Tank Capacity (gals): 200.0

Scenario:	Expected

Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated:	12.27	. 12.27	18.41
Flush Fluid Generated:	9.89	9.89	14.84
Capacity Adjustment:	5.54	5.54	8.31
Total Capacity Required per Day:	27.71	27.71	41.56
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$96	\$96	\$72
Maximum Continuous Hours of Service:	115.5	115.5	115.5
Total Operating Cost per Service Hour:	\$1.15	\$1.15	\$0.93
- Trip Related:	- \$0.91	\$0.91	\$0.62
- Non-Trip Related:	\$0.24	\$0.24	\$0.32
Total per-Car Operating Cost per Year:	\$4,690	\$4,690	\$2,858
Total Fleet Operating Cost per Year:	\$112,562	\$112,562	\$68,602
Total Fleet Capital Cost:	\$475,584		

Manufacturer:

Favorable	Unfavorable				
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016	,	·
\$466 \$288 \$178			\$1,466 \$576 \$890		
8 2	16 1	24	. 8 2	16 1	24 1
12.27	12.27	18.41	12.27	12.27	18.41
7.71	7.71	11.56	12.85	12.85	19.27
5.00	5.00	7.49	6.28	6.28	9.42
24.98	24.98	37.46	31.40	31.40	47.10
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.2	\$14.2	\$14.3
219 219	219 219	219 110	292 292	292 292	292 146
\$74	\$74	\$56	\$125	\$125	\$94
128.1	128.1	128.1	101.9	101.9	101.9
\$1.04	\$1.04	\$0.79	\$1.23	\$1.23	\$1.04
\$0.91	\$0.91	\$0.61	\$0.92	\$0.92	\$0.62
\$0.13	\$0.13	\$0.18	\$0.31	\$0.31	- \$0.42
\$3,645	\$3,645	\$2,078	\$5,745	\$5,745	\$3,646
\$87,484	\$87,484	\$49,882	\$137,890	\$137,890	\$87,510
\$475,584			\$475,584	•	

Car Type: Met-Srvc Dinette
Toilet Type: Ultimate

Manufacturer:

Number of Passengers: 23 Number of Toilets: 2

Total Tank Capacity (gals): 200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534		· .
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	3.47	4.16	4.86
Capacity Adjustment:	1.94	2.33	2.72
Total Capacity Required per Day:	9.71	11.66	13.60
Pumpout Labor Cost:	\$0.0	\$0.0	\$0.0
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.1	\$14.1	\$14.1
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$34	\$41	\$47
Maximum Continuous Hours of Service:	205.9	205.9	205.9
Total Operating Cost per Service Hour:	\$1.80	\$1.51	\$1.29
- Trip Related:	\$1.43	\$1.19	\$1.02
- Non-Trip Related:	\$0.38	\$0.32	\$0.27
Total per-Car Operating Cost per Year:	\$4,611	\$4,620	\$4,628
Total Fleet Operating Cost per Year:	\$59,945	\$60,056 ·	\$60,167
Total Fleet Capital Cost:	\$257,608	<del></del>	

F	avorable		Unfavorable			
	\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016		
	\$466 \$288 \$178			\$1,466 \$576 \$890		
	<u>2</u> 5	12 1	7 2	2 5	12 1	7 2
	4.30 2.70	5.16 3.24	6.02 3.78	4.30 4.50	5.16 5.41	6.02
	2.70 1.75	2.10	2.45	2.20	5.41 2.64	6.31 3.08
	8.76	10.51	12.26	11.01	13.21	15.41
	0.70	10.01	12.20	11.01	10.21	15.41
	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1
	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
	\$14,1	\$14.1	\$14.1	\$14.1	\$14.2	\$14.2
	219 219	219 219	219 219	292 292	292 292	292 292
	\$26	\$31	\$37	\$44	\$52	\$61
	228.4	228.4	228.4	181.7	181.7	181.7
	\$1.64	\$1.37	\$1.17	\$1.93	\$1.61	\$1.39
	\$1.42	\$1.19	\$1.02	\$1.43	-\$1.19	\$1.03
	\$0.21	\$0.18	\$0.15	\$0.50	\$0.42	\$0.36
	\$3,586	\$3,592	\$3,599	\$5,640	\$5,651	\$5,663
	\$46,517	\$46,700	\$46,783	\$73,321	\$73,469	\$73,617
	\$257,608			\$257,608		

Car Type: Met-Srvc Coach
Toilet Type: Ultimate

Manufacturer:

Number of Passengers: 60 Number of Toilets: 2

Total Tank Capacity (gals): 200.0

Scenario:	Expected		,
Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534		
Hours per Trip: 。 Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	11.23	13,47	15.72
Flush Fluid Generated:	9.05	10.86	12.67
Capacity Adjustment:	5.07	6.08	7.10
Total Capacity Required per Day:	25.34	30.41	35.48
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$88	\$106	\$123
Maximum Continuous Hours of Service:	78.9	78.9	78.9
Total Operating Cost per Service Hour:	\$1.83	<b>\$1.53</b> ,	\$1.32
- Trip Related:	\$1.45	\$1.22	\$1.05
- Non-Trip Related:	\$0.38	\$0.32	\$0.27
Total per-Car Operating Cost per Year:	\$4,680	\$4,702	\$4,724
Total Fleet Operating Cost per Year:	\$233,986	\$235,098	\$236,209
Total Fleet Capital Cost:	\$990,800	·	

Favora	able	Unfavorable			•	
\$17	,816 ,800 ,016			\$19,816 \$17,800 \$2,016		
	\$466 \$288 \$178			\$1,466 \$576 \$890		
	2 5	12 1	7 2	2 5	12 1	7 2
1	1.23	13.47	15.72	11.23	13.47	15.72
	7.05	8.46	9.87	11.75	14.10	16.45
	4.57	5.48	6.40	5.74	6.89	8.04
2	2.84	27.41	31.98	28.72	34.46	40.21
	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2
	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$	12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$	14.2	\$14.2	\$14.2	\$14.2	\$14.2	\$14.3
	219 219	219 219	219 219	292 292	292 292	292 292
	\$68	\$82	\$95	\$114	\$137	\$160
	87.6	87.6	87.6	69.6	69.6	69.6
\$	1.66	\$1.39	\$1.20	\$1.96	\$1.64	\$1.42
\$	1.45	\$1.21	\$1.05	\$1.46	\$1.23	\$1.06
	0.21	\$0.18	\$0.15	\$0.50	\$0.42	\$0.36
\$3	,637	\$3,654	\$3,671	\$5,732	\$5,761	\$5,791
\$181	,869	\$182,704	\$183,538	\$286,578	\$288,061	\$289,545
\$990	,800			\$990,800	·	,

Car Type: Met-Srvc Club

Toilet Type: Ultimate

Scenario:

Total Fleet Capital Cost:

Manufacturer:

Number of Passengers:

Number of Toilets:

Total Tank Capacity (gals): 200.0

	•		
Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534		·
- Spare Parts.	<b></b>		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	6.17	7.41	8.64
Flush Fluid Generated:	4.98	5.97	6.97
Capacity Adjustment:	2.79	3.34	3.90
Total Capacity Required per Day:	13.94	16.72	19.51
Pumpout Labor Cost:	\$0.0	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$1.4.1	\$14.2	\$14.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$48	\$58	\$68
Maximum Continuous Hours of Service:	143.5	143.5	143.5
Total Operating Cost per Service Hour:	\$1.81	\$1.51	\$1.30
- Trip Related:	\$1.43	\$1.20	\$1.03
- Non-Trip Related:	\$0.38	\$0.32	\$0.27
Total per-Car Operating Cost per Year:	\$4,630	\$4,642	\$4,654
Total Fleet Operating Cost per Year:	\$60,186	\$60,345	\$60,504

\$257,608

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**Expected** 

Favorable	Unfavorable				
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016		
\$466 \$288 \$178		·	\$1,466 \$576 \$890		
2 5	12 1	. 2	2 5	12 1	7 2
6.17	7.41	8.64	6.17	7.41	8.64
3.88	4.65	5.43	6.46	7.76	9.05
2.51	3.02	3.52	3.16	3.79	4.42
12.56	15.08	17.59	15.80	18.95	22.11
\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$,14.1	\$14.1	\$14.2	\$14.2	\$14.2	\$14.2
219 219	219 219	219 219	292 292	292 292	292 292
\$37	\$45	\$52	\$63	\$75	\$88
159.2	159.2	159.2	126.6	126.6	126.6
\$1.64	\$1.37	\$1.18	\$1.94	\$1.62	\$1.39
\$1.43	\$1.20	\$1.03	\$1.44	\$1.20	\$1.04
\$0.21	\$0.18	\$0.15	\$0.50	\$0.42	\$0.36
\$3,600	\$3,609	\$3,618	\$5,665	\$5,681	\$5,697
\$46,798	\$46,917	\$47,036	\$73,642	\$73,855	\$74,067
\$257,608			\$257,608		

Car Type: Amdinette
Toilet Type: Ultimate Manufacturer:

Expected

Number of Passengers: 23
Number of Toilets: 2
Total Tank Capacity (gals): 200.0

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Scenario:

Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
Maintenance Cost: - Labor: - Spare Parts:	\$966 \$432 \$534	÷	
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			·
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	3.47	4.16	4.86
Capacity Adjustment:	1.94	2.33	2.72
Total Capacity Required per Day:	9.71	11.66	13.60
Pumpout Labor Cost:	\$0.0	\$0.0	\$0.0
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.1	\$14.1	\$14.1
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$34	\$41 .	\$47
Maximum Continuous Hours of Service:	205.9	205.9	205.9
Total Operating Cost per Service Hour:	\$1.80	\$1.51	\$1.29
- Trip Related:	\$1.43	\$1.19	\$1.02
- Non-Trip Related:	\$0.38	\$0.32	\$0.27
Total per-Car Operating Cost per Year:	\$4,611	\$4,620	\$4,628
Total Fleet Operating Cost per Year:	\$115,279	\$115,492	\$115,705
Total Fleet Capital Cost:	\$495,400		

Favorable			Unfavorable		
\$19,816 \$17,800 \$2,016	,		\$19,816 \$17,800 \$2,016		
\$466 \$288 \$178			\$1,466 \$576 \$890		
2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
2.70	3.24	3.78	4.50	5.41	6.31
1.75	2.10	2.45	2.20	2.64	3.08
8.76	10.51	12.26	11.01	13.21	15.41
\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.1	\$14.1	\$14.1	\$14.1	\$14.2	\$14.2
219 219	219 219	219 219	292 292	292 292	292 292
\$26	\$31	\$37	\$44	\$52	\$61
228.4	228.4	228.4	181.7	181.7	181.7
\$1.64	\$1.37	\$1.17	\$1.93	\$1.61	\$1.39
\$1.42	\$1.19	\$1.02	\$1.43	\$1.19	\$1.03
\$0.21	\$0.18	\$0.15	\$0.50	\$0.42	\$0.36
\$3,586	\$3,592	\$3,599	\$5,640	\$5,651	\$5,663
\$89,647	\$89,807	\$89,967	\$141,002	\$141,286	\$141,570
\$495,400			\$495,400		

Car Type: Amcoach

Toilet Type: Ultimate Manufacturer:

Number of Passengers: 60
Number of Toilets: 2
Total Tank Capacity (gals): 200.0

Scenario: Expected

Capital Cost - Equipment: - Installation:	\$19,816 \$17,800 \$2,016		
· matanani.	Ψ2,016		
Maintenance Cost:	\$966		
- Labor: - Spare Parts:	\$432 \$534		
House and Tries			<u>.</u>
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Marks Consension Date			
Waste Generation Data Waste Generated:	11.00	40.47	45.70
Flush Fluid Generated:	11.23 9.05	13,47 10,86	15.72
Capacity Adjustment:	9.05 5.07	6.08	12.67 7.10
Total Capacity Required per Day:	25.34	30.41	7.10 35.48
Total Capacity Heddiled per Day.	23.34	30.41	33.40
. Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.2
Days Operated per Year:	255	255	255
Cléan-out Cycles per Year:	255	255	255
Waste Disposal Cost per Year:	\$88	\$106	\$123
			·
Maximum Continuous Hours of Service:	78.9	78.9	78.9
Total Operating Cost per Service Hour:	\$1.83	\$1.53	\$1.32
- Trip Related:	\$1.45	\$1.22	\$1.05
- Non-Trip Related:	\$0.38	\$0.32	\$0.27
Total per-Car Operating Cost per Year:	\$4,680	\$4,702	\$4,724
Total Fleet Operating Cost per Year:	\$145,071	\$145,761	\$146,450
Total Fleet Capital Cost:	\$614,296		
·			

Favorable			Unfavorable	. ,	
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016	·	
\$466 \$288 \$178			\$1,466 \$576 \$890		
2 5	12 1	7 2	2 5	12 1	7 2
11.23 7.05	13.47 8.46	15.72 9.87	11.23 11.75	13.47	15.72
4.57	5.48	6.40	5.74	14.10	16.45
22.84	27.41	31.98	28.72	6.89	8.04
22.04	27.41	31.90	20.72	34.46	40.21
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2
\$2.1	<b>\$2.1</b>	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.2	\$14.2	\$14.3
219 219	219 219	219 219	292 292	292 292	292 292
\$68	\$82	\$95	\$114	\$137	\$160
87.6	87.6	87.6	69.6	69.6	69.6
\$1.66	\$1.39	\$1.20	\$1.96	\$1.64	\$1.42
\$1.45	\$1.21	\$1.05	\$1.46	\$1.23	\$1.06
\$0.21	\$0.18	\$0.15	\$0.50	\$0.42	\$0.36
\$3,637	\$3,654	\$3,671	\$5,732	\$5,761	\$5,791
\$112,759	\$113,276	\$113,794	\$177,678	\$178,598	\$179,518
\$614,296			\$614,296		,

Car Type: Turbo Power Club

Toilet Type: Ultimate

Number of Passengers: 27

Manufacturer:

Number of Toilets: 1

Total Tank Capacity (gals): 200.0

Scenario:	Expected

Capital Cost - Equipment: - Installation:	\$16,628 \$14,900 \$1,728		
Maintenance Cost: - Labor: - Spare Parts:	\$663 \$216 \$447	3	
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	5.05	6.06	7.07
Flush Fluid Generated:	4.07	· 4.89	5.70
Capacity Adjustment:	2.28	2.74	3.19
Total Capacity Required per Day:	11.40	13.68	15.96
Pumpout Labor Cost:	\$0.0	\$0.0	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	<b>\$8.1</b>	\$8.1	\$8.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$40	\$48	\$55
Maximum Continuous Hours of Service:	175.4	175.4	175.4
Total Operating Cost per Service Hour:	\$1.09	\$0.91	\$0.78
- Trip Related:	\$0.83	\$0.69	\$0.60
- Non-Trip Related:	\$0.26	\$0.22	\$0.19
Total per-Car Operating Cost per Year:	\$2,783	<b>\$2,793</b>	\$2,803
Total Fleet Operating Cost per Year:	\$16,695	\$16,755	\$16,816
Total Fleet Capital Cost:	\$99,768		

Favorable			Unfavorable	,	
\$16,628 \$14,900 \$1,728			\$16,628 \$14,900 \$1,728	-	
\$293 \$144 \$149		Þ	\$1,033 \$288 \$745		
2 5	12 1	7 2	2 5	12 1	7 2
5.05	6.06	7.07	5.05	6.06	7.07
3.17	3.81	4.44	5.29	6.35	7.40
2.06	2.47	2.88	2.58	3.10	3.62
10.28	12.34	14.39	12.92	15.51	18.09
\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1
\$2,1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.1	\$8.1	\$8.1	\$8.2	\$8.2	\$8.2
219 219	219 219	219 219	292 292	292 292	292 292
\$31	\$37	\$43	\$51	\$62	\$72
194.6	194.6	194.6	154.8	154.8	154.8
\$0.96	\$0.80	\$0.69	\$1.19	\$0.99	\$0.85
\$0.83	\$0.69	\$0.60	\$0.83	\$0.70	\$0.60
\$0.13	\$0.11	\$0.10	\$0.35	\$0.29	\$0.25
\$2,104	\$2,112	\$2,119	\$3,465	\$3,478	\$3,492
\$12,627	\$12,672	\$12,717	\$20,790	\$20,870	\$20,950
\$99,768			\$99,768		

**Total Fleet Capital Cost:** 

Car Type: Turbo Coach

Scenario:

Toilet Type: Ultimate Manufacturer:

**Expected** 

Number of Passengers: 72

Number of Toilets: 2

Total Tank Capacity (gals): 200.0

•			
Capital Cost - Equipment:	\$19,816 \$17,800	<del> </del>	
- Installation:	\$2,016		
Maintenance Cost:	\$966	•	
- Labor: - Spare Parts:	\$432 \$534		
Hours per Trip: Trips per Day:	2 5	12 <sup>1</sup>	7 2
Waste Generation Data			
Waste Generated:	13.47	16.16	18.86
Flush Fluid Generated:	10.86	13.03	15.20
Capacity Adjustment:	6.08	7.30	8.51
Total Capacity Required per Day:	30.41	36.49	42.57
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.2
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$14.2	\$14.2	\$14.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$106	\$127	\$148
Maximum Continuous Hours of Service:	65.8	65.8	65.8
Total Operating Cost per Service Hour:	\$1.84	\$1.54	\$1.33
- Trip Related:	\$1.46	\$1.23	\$1.06
- Non-Trip Related:	\$0.38	\$0.32	\$0.27
Total per-Car Operating Cost per Year:	\$4,702	\$4,729	\$4,755
Total Fleet Operating Cost per Year:	\$98,741	\$99,301	\$99,862

\$416,136

Favorable			Unfavorable		
\$19,816 \$17,800 \$2,016			\$19,816 \$17,800 \$2,016	<del></del>	
\$466 \$288 \$178			\$1,466 \$576 \$890		
2 5	12 1	7 2	2 5	12 1	7 2
13.47 8.46	16.16 10.15	18.86 11.84	13.47 14.10	16.16 16.92	18.86 19.74
5.48	6.58	7.68	6.89	8.27	
27.41	32.90	38.38	34.46	41.36	9.65 48.25
27.41	32.90	30.30	34.40	41.30	40.25
\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$14.2	\$14.2	\$14.2	\$14.2	\$14.3	\$14.3
219 219	219 219	219 219	292 292	292 292	292 292
\$82	\$98	\$114	\$137	\$164	\$192
73.0	73.0	73.0	58.0	58.0	58.0
\$1.67	\$1.40	\$1.20	\$1.97	\$1.65	\$1.43
\$1.46	\$1.22	\$1.05	\$1.47	\$1.24	\$1.07
\$0.21	\$0.18	\$0.15	\$0.50	\$0.42	\$0.36
\$3,654	\$3,674	\$3,694	\$5,761	\$5,797	\$5,832
\$76,736	\$77,156	\$77,577	\$120,986	\$121,734	\$122,481
\$416,136			\$416,136		

Car Type: Turbo Cafe Toilet Type:

Ultimate

Manufacturer:

Number of Passengers: **Number of Toilets:** 

52

Total Tank Capacity (gals):

200.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$16,628 \$14,900 \$1,728		
Maintenance Cost: - Labor: - Spare Parts:	\$663 \$216 \$447		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	9.73	11.67	13.62
Flush Fluid Generated:	7.84	9.41	10.98
Capacity Adjustment:	4.39	5.27	6.15
Total Capacity Required per Day:	21.96	26.35	30.75
Pumpout Labor Cost:	. \$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.2	\$8.2	\$8.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$76	\$92	\$107
Maximum Continuous Hours of Service:	91.1	91.1	91.1
Total Operating Cost per Service Hour:	\$1.11	\$0.93	\$0.80
- Trip Related:	\$0.85	\$0.71	\$0.62
- Non-Trip Related:	\$0.26	\$0.22	\$0.19
Total per-Car Operating Cost per Year:	\$2,829	\$2,848	\$2,867
Total Fleet Operating Cost per Year:	\$8,487	\$8,545	\$8,602
Total Fleet Capital Cost:	\$49,884		

Favorable			Unfavorable		"
\$16,628 \$14,900 \$1,728			\$16,628 \$14,900 \$1,728		
\$293 \$144 \$149			\$1,033 \$288 \$745		
2 5	12 1	7 2	2 5	12 1	7 2
9.73	11.67	13.62	9.73	11.67	13.62
6.11	7.33	8.55	10.18	12.22	14.26
3.96	4.75	5.54	4.98	5.97	6.97
19.80	23.76	27.72	24.89	29.87	34.85
\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.2	\$8.2	\$8.2	\$8.2	\$8.2	\$8.2
219 219	219 219	219 219	292 292	292 292	292 292
\$59	\$71	\$83	\$99	\$119	\$138
101.0	101.0	101.0	80.4	80.4	80.4
\$0.98	\$0.82	\$0.71	\$1.21	\$1.01	\$0.88
\$0.84	\$0.71	\$0.61	\$0.85	\$0.72	\$0.62
\$0.13	\$0.11	\$0.10	\$0.35	\$0.29	\$0.25
\$2,139	\$2,154	\$2,168	\$3,527	\$3,552	\$3,578
\$6,418	\$6,461	\$6,505	\$10,580	\$10,657	\$10,735
\$49,884			\$49,884		ı

Car Type:

**Turbo Power Coach** 

Toilet Type:

Ultimate

Manufacturer:

Number of Passengers: 40
Number of Toilets: 1
Total Tank Capacity (gals): 200.0

Scenario:	Expected
•	
Canital Cast	640.000

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Capital Cost	\$16,628		
- Equipment:	\$14,900		
- Installation:	\$1,728		
•	,		1
Maintenance Cost:	\$663		
- Labor: - Spare Parts:	\$216 \$447		
- Spare Faits.	Φ <del>44</del> /		
Hours per Trip:	2	12	7
Trips per Day:	2 5	1	2
	1		
Waste Generation Data			
Waste Generated:	7.48	8.98	10.48
Flush Fluid Generated:	6.03	7.24	8.44
Capacity Adjustment:	3.38	4.05	4.73
Total Capacity Required per Day:	16.89	20.27	23.65
•		•	
Pumpout Labor Cost:	\$0.1	\$0.1	\$0.1
Connect/Disconnect Labor Cost:	\$2.1	\$2.1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.2	\$8.2	\$8.2
		,	•
Days Operated per Year:	255	255	255
Clean-out Cycles per Year:	255	255	255
		<b>.</b>	
Waste Disposal Cost per Year:	\$59	\$70	\$82
Maximum Continuous Hours of Service:	118.4	118.4	118.4
Total Operating Cost per Service Hour:	\$1.10	\$0.92	\$0.79
- Trip Related:	\$0.84	\$0.70	\$0.61
- Non-Trip Related:	\$0.26	\$0.22	\$0.19
Total and Con Constitute Contact St.	***	40.004	40.000
Total per-Car Operating Cost per Year:	\$2,807	\$2,821	\$2,836
Total Floet Operating Cost per Year:	\$39,293	\$39,501	\$39,708
	<b></b>		
Total Fleet Capital Cost:	\$232,792		

Favorable			Unfavorable	,	•
\$16,628 \$14,900 \$1,728			\$16,628 \$14,900 \$1,728		
\$293 \$144 \$149			\$1,033 \$288 \$745	•	
2 5	12 1	7 2	2 5	12 . 1	7 2
7.48	8.98	10.48	7.48	8.98	10.48
4.70	5.64	6.58	7.83	9.40	10.97
3.05	3.66	4.26	3.83	4.60	5.36
15.23	18.28	21.32	19.15	22.98	26.80
\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
\$2.1	\$2.1	\$2.1	\$2.1	\$2.1	\$2.1
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.1	\$8.2	\$8.2	\$8.2	\$8.2	, \$8.2
219 219	219 219	219 219	292 292	292 292	292 292
\$45	\$54	\$64	\$76	\$91	\$106
131.3	131.3	131.3	104.5	104.5	104.5
\$0.97	\$0.81	\$0.70	\$1.20	\$1.00	\$0.87
\$0.84	\$0.70	\$0.60	\$0.84	\$0.71	\$0.61
\$0.13	\$0.11	\$0.10	\$0.35	\$0.29	\$0.25
\$2,123	\$2,134	\$2,145	\$3,497	\$3,517	\$3,537
\$29,716	\$29,872	\$30,027	\$48,959	\$49,236	\$49,513
\$232,792			\$232,792		

## D5 Railtech WTS 8300

Car Type: Coach-HEP-HLV
Toilet Type: WTS 8300

Number of Passengers: 72
Number of Toilets: 4

Manufacturer:

Total Tank Capacity (gals): 100.0

Scenario: Expected

	Scenario:	Expected		
	Capital Cost - Equipment: - Installation:	\$21,728 \$20,000 \$1,728		
	Maintenance Cost: - Labor: - Spare Parts:	\$1,464 \$864 \$600		
	Hours per Trip: Trips per Day:	24 1	48 1	72 1
	Waste Generation Data			
	Waste Generated:	32.33	64.66	96.98
	Flush Fluid Generated:	145.89	291.79	437.68
	Capacity Adjustment:	44.56	89.11	133.67
•	Total Capacity Required per Day:	222.78	445.56	668.34
	Pumpout Labor Cost:	\$1.5	\$2.9	\$4.4
	Connect/Disconnect Labor Cost:	\$12.6	\$21.0	\$29.4
	Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
	Total Pumpout/Cleaning Cost per Day:	\$38.1	\$47.9	\$57.8
	Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
	Waste Disposal Cost per Year:	\$387	\$516	\$581
	Maximum Continuous Hours of Service:	10.8	10.8	10.8
	Total Operating Cost per Service Hour:	\$2.19	<b>\$1.48</b>	\$1.25
	- Trip Related:	\$1.71	\$1.12	\$0.93
	- Non-Trip Related:	\$0.48	\$0.36	\$0.32
	Total per-Car Operating Cost per Year:	\$6,713	\$6,061	\$5,735
	Total Fleet Operating Cost per Year:	\$140,975	\$127,283	\$120,437
	Total Fleet Capital Cost:	\$456,288		

### Railtech

Favorable			Unfavorable		•
\$21,728 \$20,000 \$1,728			\$21,728 \$20,000 \$1,728	<del>V.L</del>	
\$776 \$576 \$200			\$2,152 \$1,152 \$1,000	er.	
24 1	48 1	72 1	24	48 1	72 1
32.33 113.68	64.66 227.37	96.98 341.05	32.33 189.47	64.66 378.95	96.98 568.42
36.50	73.01	109.51	55.45	110.90	166.35
182.52	365.03	547.55	277.25	554.50	831.76
102.32	303.03	347.33	277.23	334.30	831.70
\$1.1	\$2.3	\$3.4	\$1.9	\$3.8	\$5.7
\$8.4	\$16.8	\$25.2	\$12.6	\$25.2	\$37.8
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$33.5	\$43.1	\$52.6	\$38.5	\$53.0	\$67.5
219 110	219 73	219 55	292 146	292 97	292 73
\$272	\$362	\$408	\$551	\$734	\$826
13.1	13.1	13.1	8.7	8.7	8.7
\$1.80	\$1.22	\$1.03	\$2.38	\$1.72	\$1.50
\$1.50	\$1.00	\$0.83	\$1.76	\$1.26	\$1.09
\$0.30	\$0.22	\$0.20	\$0.61	\$0.46	\$0.41
\$4,720	\$4,283	\$4,064	\$8,323	\$8,044	\$7,904
\$99,122	\$89,938	\$85,347	\$174,778	\$168,917	\$165,986
\$456,288		1	\$456,288		

Car Type:

Lounge-HEP-HLV

WTS 8300

Manufacturer:

Number of Passengers: Number of Toilets:

86

2 100.0

Total Tank Capacity (gals):

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152	· · ·	••
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data	•		
Waste Generated;	38.61	77.23	115.84
Flush Fluid Generated:	174.26	348.53	522.79
Capacity Adjustment:	53.22	106.44	159.66
Total Capacity Required per Day:	266.10	532.19	798.29
Pumpout Labor Cost:	\$1.7	\$3.5	\$5.2
Connect/Disconnect Labor Cost:	\$12.6	\$25.2	\$33.6
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$26.3	\$40.7	\$50.8
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$462	\$616	\$693
Maximum Continuous Hours of Service:	9.0	9.0	9.0
Total Operating Cost per Service Hour:	\$1.53	\$1.21	\$1.04
- Trip Related:	· \$1.25	\$1.00	\$0.86
- Non-Trip Related:	\$0.28	\$0.21	\$0.19
Total per-Car Operating Cost per Year:	<b>\$4,680</b>	\$4,933	\$4,792
Total Fleet Operating Cost per Year:	\$28,078	\$29,601	\$28,753
Total Fleet Capital Cost:	\$90,912		

#### Railtech

Favorable			Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		·
\$428 \$288 \$140			\$1,276 \$576 \$700		
24 1	48 1	72 1	24 1	48 1	72 1
38.61	77.23	115.84	38.61	77.23	115.84
135.79	271.58	407.37	226.32	452.63	678.95
43.60	87.20	130.80	66.23	132.46	198.70
218.00	436.01	654.01	331.16	662.32	993.49
\$1.4	\$2.7	\$4.1	\$2.3	\$4.5	\$6.8
\$12.6	\$21.0	\$29.4	\$16.8	\$29.4	\$42.0
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$26.0	\$35.7	\$45.5	\$31.1	\$45.9	\$60.8
219 110	219 73	219 55	292 146	292 97	292 73
\$325	\$433	\$487	\$658	\$877	\$986
11.0	11.0	11.0	7.2	7.2	7.2
\$1.37	\$0.99	\$0.86	\$1.85	\$1.42	\$1.27
\$1.21	\$0.87	\$0.76	\$1.48	\$1.14	\$1.03
\$0.16	\$0.12	\$0.11	\$0.36	\$0.27	\$0.24
\$3,595	\$3,468	\$3,405	\$6,469	\$6,623	\$6,700
\$21,570	\$20,809	\$20,428	\$38,813	\$39,737	\$40,200
\$90,912	· · · · · · · · · · · · · · · · · · ·		\$90,912		

Car Type: Trans Dorm Coach

Toilet Type: WTS 8300

WTS 8300 Manufacturer:

Number of Passengers: 40
Number of Toilets: 4
Total Tank Capacity (gals): 100.0

Scenario: Expected

Scenario.	Expected		
Capital Cost - Equipment: - Installation:	\$21,728 \$20,000 \$1,728		<del>.</del>
Maintenance Cost: - Labor: - Spare Parts:	\$1,464 \$ \$864 \$600		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	81.05	162.11	243.16
Capacity Adjustment:	24.75	49.51	74.26
Total Capacity Required per Day:	123.77	247.53	371.30
y otal capacity froquinca por Bay.	120.77	247.00	071.00
Pumpout Labor Cost:	\$0.8	\$1.6	\$2.4
Connect/Disconnect Labor Cost:	\$8.4	\$12.6	\$16.8
Cleaning Labor Cost:	\$24.0	\$24.0	\$24.0
Total Pumpout/Cleaning Cost per Day:	\$33.2	\$38.2	\$43.2
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$215	\$287	\$323
Maximum Continuous Hours of Service:	19.4	19.4	19.4
Total Operating Cost per Service Hour:	\$1.93	\$1.22	\$0.99
- Trip Related:	\$1.45	\$0.87	\$0.67
- Non-Trip Related:	\$0.48	\$0.36	\$0.32
•			
Total per-Car Operating Cost per Year:	\$5,922	\$5,006	\$4,548
Total Fleet Operating Cost per Yoar:	\$213,180	\$180,211	\$163,727
Total Fleet Capital Cost:	\$782,208		

## Railtech

Favorable			Unfavorable		
\$21,728 \$20,000 \$1,728			\$21,728 \$20,000 \$1,728		
\$776 \$576 \$200		·	\$2,152 \$1,152 \$1,000		٠.
24 1	48 1	72	24 . 1	48 1	72 1
17.96	35.92	53.88	17.96	35.92	53.88
63.16	126.32	189.47	105.26	210.53	315.79
20.28	40.56	60.84	30.81	61.61	92.42
101.40	202.79	304.19	154.03	308.06	462.09
\$0.6	\$1.3	\$1.9	\$1.1	\$2.1	\$3.2
\$8.4	\$12.6	\$16.8	\$8.4	\$16.8	\$21.0
\$24.0	\$24.0	\$24.0	\$24.0	\$24.0	\$24.0
\$33.0	\$37.9	\$42.7	\$33.5	\$42.9	\$48.2
219 110	219 73	219 55	292 146	292 97	292 73
\$151	\$201	\$227	· \$306	\$408	\$459
23.7	23.7	23.7	15.6	15.6	15.6
\$1.73	\$1.07	\$0.85	\$2.10	<b>\$1.44</b>	\$1.17
\$1.43	\$0.85	\$0.65	\$1.48	\$0.98	\$0.76
\$0.30	\$0.22	\$0.20	\$0.61	\$0.46	\$0.41
\$4,544	\$3,741	\$3,340	\$7,342	\$6,736	\$6,126
\$163,583	\$134,688	\$120,241	\$264,309	\$242,492	\$220,546
\$782,208			\$782,208		-

Car Type: Sleeper Super Toilet Type: WTS 8300

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Manufacturer:

Number of Passengers: 44
Number of Toilets: 12
Total Tank Capacity (gals): 300.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$65,184 \$60,000 \$5,184		
Maintenance Cost: - Labor: - Spare Parts:	\$4,392 \$2,592 \$1,800		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	19.76	39.51	59.27
Flush Fluid Generated:	89.16	178.32	267.47
Capacity Adjustment:	27.23	54.46	81.69
Total Capacity Required per Day:	136.14	272.28	408.43
Pumpout Labor Cost:	\$0.9	\$1.8	\$2.7
Connect/Disconnect Labor Cost:	\$12.6	\$12.6	\$25.2
Cleaning Labor Cost:	\$72.0	\$72.0	\$72.0
Total Pumpout/Cleaning Cost per Day:	\$85.5	\$86.4	\$99.9
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$237	\$315	\$355
Maximum Continuous Hours of Service:	52.9	52.9	52.9
Total Operating Cost per Service Hour:	\$5.07	\$2.95	\$2.42
- Trip Related:	\$3.64	\$1.88	\$1.46
- Non-Trip Related:	\$1.43	\$1.07	\$0.95
Total per-Car Operating Cost per Year:	\$15,550	\$12,064	\$11,126
Total Fleet Operating Cost per Year:	\$1,057,406	\$820,375	\$755,588
Total Fleet Capital Cost:	\$4,432,512	· · · · · · · · · · · · · · · · · · ·	

#### Railtech

Favorable			Unfavorable		
\$65,184 \$60,000 \$5,184			\$65,184 \$60,000 \$5,184		
\$2,328 \$1,728 \$600			\$6,456 \$3,456 \$3,000		
24 1	<b>48</b> 1	72 1	24 1	48 1	72 1
		·			
19.76	39.51	59.27	19.76	39.51	59.27
69.47	138.95	208.42	115.79	231.58	347.37
22.31	44.61	66.92	33.89	67.77	101.66
111.54	223.07	334.61	169.43	338.86	508.30
\$0.7	<b>\$1.4</b>	\$2.1	\$1.2	\$2.3	\$3.5
\$12.6	\$12.6	\$25.2	\$12.6	\$25.2	\$25.2
\$72.0	\$72.0	\$72.0	\$72.0	\$72.0	\$72.0
\$85.3	\$86.0	\$99.3	. \$85.8	\$99.5	\$100.7
219 110	219 73	219 55	292 146	292 97	292 73
\$166	\$221	\$249	\$336	\$449	\$505
64.6	64.6	64.6	42.5	42.5	42.5
\$4.50	\$2.52	\$2.03	\$5.51	\$3.55	\$2.72
\$3.62	\$1.85	\$1.44	\$3.67	\$2.17	\$1.49
\$0.89	\$0.66	\$0.59	\$1.84	\$1.38	\$1.23
\$11,834	\$8,827	\$8,013	\$19,313	\$16,591	\$14,310
\$804,703	\$600,216	\$544,881	\$1,313,289	\$1,128,172	\$973,067
\$4,432,512			\$4,432,512	•	

Car Type:

Bag Coach Super

Toilet Type:

WTS 8300

Manufacturer:

Number of Passengers: 78
Number of Toilets: 5
Total Tank Capacity (gals): 150.0

Scenario: Expected

	p.oo.a		
Capital Cost - Equipment: - Installation:	\$29,304 \$27,000 \$2,304		
Maintenance Cost: - Labor: - Spare Parts:	\$1,890 \$1,080 \$810		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data		•	
Waste Generated:	. 35.02	70.04	105.07
Flush Fluid Generated:	158.05	316.11	474.16
Capacity Adjustment:	48.27	96.54	144.81
⊤ Total Capacity Required per Day:	241.34	482.69	724.03
Pumpout Labor Cost:	\$1.6	\$3.2	\$4.7
Connect/Disconnect Labor Cost:	\$12.6	\$25.2	\$31.5
Cleaning Labor Cost:	\$30.0	\$30.0	\$30.0
Total Pumpout/Cleaning Cost per Day:	\$44.2	\$58.4	\$66.2
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$419	\$559	\$629
Maximum Continuous Hours of Service:	14.9	14.9	14.9
Total Operating Cost per Service Hour:	\$2.59	\$1.81	\$1.47
- Trip Related:	\$1.98	\$1.35	\$1.06
- Non-Trip Related:	\$0.62	\$0.46	\$0.41
Total per-Car Operating Cost per Year:	\$7,953	\$7,419	\$6,750
Total Fleat Operating Cost per Year:	\$381,762	\$356,136	\$324,007
Total Fleet Capital Cost:	\$1,406,592	·	

### Railtech

Favorable			Unfavorable		
\$29,304 \$27,000 \$2,304			\$29,304 \$27,000 \$2,304	·	
\$990 \$720 \$270		. }	\$2,790 \$1,440 \$1,350		
24 1	48 1	72 1	24 1	48 1	72 1
35.02	70.04	105.07	35.02	70.04	105.07
123.16	246.32	369.47	205.26	410.53	615.79
39.54	79.09	118.63	60.07	120.14	180.21
197.72	395.45	593.17	300.36	600.71	901.07
\$1.2	\$2.5	\$3.7	\$2.1	\$4.1	\$6.2
\$12.6	\$18.9	\$25.2	\$18.9	\$31.5	\$44.1
\$30.0	\$30.0	\$30.0	\$30.0	\$30.0	\$30.0
\$43.8	\$51.4	\$58.9	\$51.0	\$65.6	\$80.3
219 110	219 73	219 55	292 146	292 97	292 73
\$294	\$393	\$442	\$596	\$795	\$895
18.2	18.2	18.2	12.0	12.0	12.0
\$2.32	\$1.46	\$1.18	\$3.09	\$2.13	\$1.82
\$1.94	\$1.18	\$0.93	\$2.29	\$1.54	\$1.28
\$0.38	\$0.28	\$0.25	\$0.80	\$0.60	\$0.53
\$6,084	\$5,132	\$4,656	\$10,825	\$9,971	\$9,543
\$292,032	\$246,341	\$223,496	\$519,623	\$478,597	\$458,084
\$1,406,592			\$1,406,592		

Car Type: **Coach Super** 

WTS 8300

Toilet Type: Manufacturer:

Number of Passengers: 75 Number of Toilets: 6 Total Tank Capacity (gals): 150.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$32,592 \$30,000 \$2,592		
Maintenance Cost: - Labor: - Spare Parts:	\$2,196 . \$1,296 . \$900		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			Ï
Waste Generated:	33.68	67.35	101.03
Flush Fluid Generated:	151.97	303.95	455.92
Capacity Adjustment:	46.41	92.82	139.24
Total Capacity Required per Day:	232.06	464.12	696.18
Pumpout Labor Cost:	\$1.5	\$3.0	\$4.6
Connect/Disconnect Labor Cost:	\$12.6	\$25.2	\$31.5
Cleaning Labor Cost:	\$36.0	\$36.0	\$36.0
Total Pumpout/Cleaning Cost per Day:	\$50.1	\$64.2	\$72.1
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$403	\$538	\$605
Maximum Continuous Hours of Service:	15.5	15.5	15.5
Total Operating Cost per Service Hour:	\$2.94	\$2.01	\$1.61
- Trip Related:	\$2.22	\$1.47	\$1.13
- Non-Trip Related:	\$0.72	\$0.54	\$0.48
Total per-Car Operating Cost per Year:	\$9,002	\$8,205	\$7,404
Total Fleet Operating Cost per Year:	\$819,180	\$746,622	\$673,724
Total Fleet Capital Cost:	\$2,965,872		

### Railtech

Favorable			Unfavorable		
\$32,592 \$30,000 \$2,592			\$32,592 \$30,000 \$2,592		
\$1,164 \$864 \$300			\$3,228 \$1,728 \$1,500		
24 1	48 1	72 1	24	48 1	72 1
33.68	67.35	101.03	33.68	67.35	101.03
118.42	236.84	355.26	197.37	394.74	592.11
38.02	76.05	114.07	57.76	115.52	173.28
190.12	380.24	570.36	288.80	577.61	866.41
\$1.2	\$2.4	\$3.6	\$2.0	\$3.9	\$5.9
\$12.6	\$18.9	\$25.2	\$12.6	\$25.2	\$37.8
\$36.0	\$36.0	\$36.0	\$36.0	\$36.0	\$36.0
\$49.8	\$57.3	\$64.8	\$50,6	\$65.1	<b>^</b> \$79.7
219 110	219 73	219 55	292 146	292 97	292 73
\$283	\$378	\$425	\$573	\$765	\$860
18.9	18.9	18.9	12.5	12.5	12.5
\$2.62	\$1.63	\$1.30	\$3.19	\$2.21	. \$1.89
\$2.18	\$1.30	\$1.01	\$2.27	\$1.52	\$1.27
\$0.44	\$0.33	\$0.30	\$0.92	\$0.69	\$0.61
\$6,898	\$5,722	\$5,134	\$11,185	\$10,334	\$9,908
\$627,763	\$520,711	\$467,185	\$1,017,854	\$940,35 <b>9</b>	\$901,611
\$2,965,872	-1		\$2,965,872		

Total Fleet Capital Cost:

Car Type: Horizon WTS 8300 Toilet Type: Manufacturer: Number of Passengers: 82 Number of Toilets: 2 Total Tank Capacity (gals): 100.0 Scenario: Expected Capital Cost \$15,152 Equipment: \$14,000 Installation: \$1,152 Maintenance Cost: \$852 Labor: \$432 - Spare Parts: \$420 Hours per Trip: 12 48 24 Trips per Day: Waste Generation Data Waste Generated: 18.41 36.82 73.64 Flush Fluid Generated: 83.08 166.16 332,32 Capacity Adjustment: 25.37 50.74 101.49 Total Capacity Required per Day: 126.86 253.72 507.44 Pumpout Labor Cost: \$0.8 \$1.7 \$3.3 Connect/Disconnect Labor Cost: \$8.4 \$12.6 \$25.2 Cleaning Labor Cost: \$12.0 \$12.0 \$12.0 Total Pumpout/Cleaning Cost per Day: \$21.2 \$26.3 \$40.5 Days Operated per Year: 255 255 255 Clean-out Cycles per Year: 255 128 85 Waste Disposal Cost per Year: \$441 . \$441 \$588 Maximum Continuous Hours of Service: 9.5 9.5 9.5 Total Operating Cost per Service Hour: \$2.19 \$1.52 \$1.20 - Trip Related: \$1.91 \$1.24 \$0.99 - Non-Trip Related: \$0.28 \$0.28 \$0.21 Total per-Car Operating Cost per Year: \$6,717 \$4,648 \$4,891 Total Fleet Operating Cost per Year: \$691,880 \$478,716 \$503,770

\$1,560,656

### Railtech

Favorable	,		Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		
\$428 \$288 \$140			\$1,276 \$576 \$700		
12 1	24 1	48	12 1	24 1	48 1
18.41	36.82	73.64	18.41	36.82	73.64
64.74	129.47	258.95	107.89	215.79	431.58
20.79	41.57	83.15	31.58	63.15	126.30
103.93	207.86	415.73	157.88	315.76	631.52
\$0.6	\$1.3	\$2.6	\$1.1	\$2.2	\$4.3
\$8.4	\$12.6	\$21.0	\$8.4	\$16.8	\$29.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$21.0	\$25.9	\$35.6	\$21.5	\$31.0	\$45.7
219 219	219 110	219 73	292 292	292 146	292 97
\$310	\$310	\$413	\$627	\$627	\$836
11.5	11.5	11.5	7.6	7.6	7.6
\$2.03	\$1.36	\$0.98	\$2.33	\$1.83	\$1.40
\$1.87	\$1.20	\$0.86	\$1.97	\$1.47	\$1.13
\$0.16	\$0.16	\$0.12	\$0.36	\$0.36	\$0.27
\$5,347	· \$3,573	\$3,439	\$8,175	\$6,423	\$6,562
\$550,732	\$368,022	\$354,193	\$842,007	\$661,551	\$675,848
\$1,560,656			\$1,560,656	,	

Car Type: Coach Toilet Type: WTS 8300 Manufacturer:

Number of Passengers: 48 Number of Toilets: 2

Total Tank Capacity (gals): 100.0

Scenario:	Expected
Occidio.	Expedie
	•

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	12	24 1	48 <sup>-</sup> 1
Waste Generation Data			
Waste Generated:	10.78	21.55	43.10
Flush Fluid Generated:	48.63	97.26	194.53
Capacity Adjustment:	14.85	29.70	59.41
Total Capacity Required per Day:	74.26	148.52	297.04
Pumpout Labor Cost:	\$0.5	\$1.0	\$1.9
Connect/Disconnect Labor Cost:	\$4.2	\$8.4	\$12.6
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.7	\$21.4	\$26.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$258	\$258	\$344
Maximum Continuous Hours of Service:	16.2	16.2	16.2
Total Operating Cost per Service Hour:	\$1.75	\$1.25	\$0.85
- Trip Related:	\$1.47	\$0.97	\$0.64
- Non-Trip Related:	\$0.28	\$0.28	\$0.21
Total per-Car Operating Cost per Year:	\$5,373	\$3,840	\$3,457
Total Fleet Operating Cost per Ycar:	\$419,124	\$299,550	\$269,632
Total Fleet Capital Cost:	\$1,181,856		

Favorable	•		Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		
\$428 \$288 \$140			\$1,276 \$576 \$700		
12 1	24 1	48	12 ` 1	24 1	48
10.78 37.89	21.55 75.79	43.10 151.58	10.78 63.16	21.55 126.32	43.10 252.63
12.17	24.34	48.67	18.48	36.97	73.93
60.84	121.68	243.35	92.42	184.83	369.67
\$0.4	\$0.8	\$1.5	\$0.6	\$1.3	\$2.5
\$4.2	\$8.4	\$12.6	\$4.2	\$8.4	\$16.8
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.6	\$21.2	\$26.1	\$16.8	\$21.7	\$31.3
219 219	219 110	219 73	292 292	292 146	292 97
\$181	\$181	\$242	\$367	\$367	\$489
19.7	19.7	19.7	13.0	13.0	13.0
\$1.61	\$1.11	\$0.74	\$1.87	\$1.37	\$1.03
\$1.45	\$0.95	\$0.61	\$1.51	\$1.01	\$0.76
\$0.16	\$0.16	\$0.12	\$0.36	\$0.36	\$0.27
\$4,240	\$2,926	\$2,576	\$6,558	\$4,806	\$4,814
\$330,719	\$228,227	\$200,932	\$511,511	\$374,855	\$375,526
\$1,181,856			\$1,181,856		

Car Type: Coach (HDCP)
Toilet Type: WTS 8300

Manufacturer:

Number of Passengers: 44
Number of Toilets: 3

Total Tank Capacity (gals): 100.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$18,440 \$17,000 \$1,440		:
Maintenance Cost: - Labor: - Spare Parts:	\$1,158 \$648 \$510		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	9.88	19.76	39.51
Flush Fluid Generated:	44.58	89.16	178.32
Capacity Adjustment:	13.61	27.23	54.46
Total Capacity Required per Day:	68.07	136.14	272.28
Pumpout Labor Cost:	\$0.4	\$0.9	\$1.8
Connect/Disconnect Labor Cost:	\$4.2	\$8.4	\$12.6
Cleaning Labor Cost:	\$18.0	\$18.0	\$18.0
Total Pumpout/Cleaning Cost per Day:	\$22.6	\$27.3	\$32.4
Days Operated per Year: Clean-out Cycles per Year:	255 255	· 255 128	255 85
Waste Disposal Cost per Year:	\$2 <b>3</b> 7	\$237	\$315
Maximum Continuous Hours of Service:	17.6	17.6	17.6
Total Operating Cost per Service Hour:	\$2.34	\$1.59	\$1.04
- Trip Related:	\$1.96	\$1.21	\$0.75
- Non-Trip Related:	\$0.38	\$0.38	\$0.28
Total per-Car Operating Cost per Year:	\$7,181	\$4,881	\$4,231
Total Fleet Operating Cost per Year:	\$150,791	\$102,502	\$82,858
Total Fleet Capital Cost:	\$387,240		

Favorable			Unfavorable		
\$18,440 \$17,000 \$1,440	·		\$18,440 \$17,000 \$1,440		
\$602 \$432 \$170			\$1,714 \$864 \$850		
, <b>12</b> , <b>1</b>	<b>24</b> 1	48	12 1	24 1	48 1
9.88	19.76	39.51	9.88	19.76	39.51
34.74	69.47	138.95	57.89	115.79	231.58
11.15	22.31	44.61	16.94	33.89	67.77
55.77	111.54	223.07	84.72	169.43	338.86
\$0.3	\$0.7	\$1.4	\$0.6	\$1.2	\$2.3
\$4.2	\$8.4	\$12.6	\$4.2	\$8.4	\$16.8
\$18.0	\$18.0	\$18.0	\$18.0	\$18.0	\$18.0
\$22.5	\$27.1	\$32.0	\$22.8	\$27.6	\$37.1
219 219	219 110	219 73	292 292	292 146	292 97
\$166	\$166	\$221	\$336	\$336	\$449
21.5	21.5	21.5	14.2	14.2	14.2
\$2.17	\$1.42	\$0.90	\$2.48	\$1.73	\$1.24
\$1.94	\$1.19	\$0.73	\$1.99	\$1.24	\$0.87
\$0.23	\$0.23	\$0.17	\$0.49	\$0.49	\$0.37
\$5,706	\$3,735	\$3,159	\$8,702	\$6,074	\$5,775
\$119,825	\$78,434	\$66,333	\$182,739	\$127,551	\$121,279
\$387,240			\$387,240		

Car Type: Dome Coach
Toilet Type: WTS 8300

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Number of Passengers: 46

Number of Toilets: 2 Total Tank Capacity (gals): 100.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated:	10.33	20.65	41.31
Flush Fluid Generated:	46.61	93.21	186.42
Capacity Adjustment:	14.23	28.47	56.93
Total Capacity Required per Day:	71.17	142.33	284.66
Pumpout Labor Cost:	\$0.5	\$0.9	\$1.9
Connect/Disconnect Labor Cost:	\$4.2	\$8.4	\$12.6
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.7	\$21.3	\$26.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$247	\$247	\$330
Maximum Continuous Hours of Service:	16.9	16.9	16.9
Total Operating Cost per Service Hour:	\$1.75	\$1.25	\$0.84
- Trip Related:	\$1.47	\$0.97	\$0.63
- Non-Trip Related:	\$0.28	\$0.28	\$0.21
Total per-Car Operating Cost per Year:	\$5,357	\$3,824	\$3,436
Total Fleet Operating Cost per Year:	\$64,290	\$45,891	\$41,227
Total Fleet Capital Cost:	\$181,824		, 

Manufacturer:

\$15,152 \$14,000 \$1,152	· · · · · · · · · · · · · · · · · · ·	\$15,152		
* * * * * * * * * * * * * * * * * * * *		\$14,000 \$1,152		
\$428 \$288 \$140		\$1,276 \$576 \$700		· .
12 1	24 48 1 1	12	24 1	48 1
	0.65 41.31	1 1	20.65	41.31
	2.63 145.26	I I	121.05	242.11
	3.32 46.64	1 1	35.43	70.85
58.30 11	6.61 233.21	88.57	177.13	354.27
\$0.4	\$0.7 \$1.5	\$0.6	\$1.2	\$2.4
	\$8.4 \$12.6	1 1	\$8.4	\$16.8
•	12.0 \$12.0	1 1	\$12.0	\$12.0
· ·	21.1 \$26.1	1 1	\$21.6	\$31.2
				·
219 219	219 219 110 73		292 146	292 97
\$174	\$174 \$232	\$352	\$352	\$469
20.6	20.6 20.6	13.5	13.5	13.5
	1.11 \$0.73	1 1	\$1.36	\$1.02
	0.95 \$0.61	1 1	\$1.00	\$0.75
•	0.16 \$0.12	i i '	\$0.36	\$0.27
* <b>\</b>	<b>40.112</b>	1		<b>40.2</b> 7
\$4,229 \$2	,915 \$2,561	\$6,535	\$4,783	\$4,784
\$50,748 \$34	,980 \$30,737	\$78,418	\$57,394	\$57,406
\$181,824		\$181,824		į

Car Type: Amlounge II

Toilet Type: WTS 8300 Manufacturer:

Number of Passengers: 49

Number of Toilets: 2

Total Tank Capacity (gals): 100.0

	ocenan	0:	ַ	expected:

Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	12 1	<b>24</b> 1	. 48 1
Waste Generation Data			
Waste Generated;	11.00	22.00	44.00
Flush Fluid Generated:	49.64	99.29	198.58
Capacity Adjustment:	15.16	30.32	60.65
Total Capacity Required per Day:	75.81	151.61	303.23
Pumpout Labor Cost:	\$0.5	\$1.0	\$2.0
Connect/Disconnect Labor Cost:	\$4.2	\$8.4	\$16.8
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.7	\$21.4	\$30.8
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$263	\$263	\$351
Maximum Continuous Hours of Service:	15.8	15.8	15.8
Total Operating Cost per Service Hour:	\$1.76	\$1.26	\$0.94
- Trip Related:	\$1.48	\$0.98	\$0.73
- Non-Trip Related:	\$0.28	\$0.28	\$0.21
Total per-Car Operating Cost per Year:	<b>\$5,381</b>	\$3,848	\$3,825
Total Fleet Operating Cost per Year:	\$134,534	\$96,209	\$95,628
Total Fleet Capital Cost:	\$378,800		

Favorable			Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		
\$428 \$288 \$140	. '		\$1,276 \$576 \$700		
12 1	. 24 . 1	48	12	24 1	48
11.00 38.68	22.00	44.00	11.00	22.00	44.00
	77.37	154.74	64.47	128.95	257.89
12.42	24.84	49.68	18.87	37.74	75.47
62.11	124.21	248.42	94.34	188.69	377.37
\$0.4	\$0.8	\$1.5	\$0.6	\$1.3	\$2.6
\$4.2	\$8.4	\$12.6	\$4.2	\$8.4	\$16.8
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$10.0
\$16.6 .	\$21.2	\$26.1	\$16.8	\$12.0	\$31.4
******	<b>4</b>	<b>420</b>	<b>410.0</b>	Ψ21.7	Ψοι
219	219	219	292 292	292	292
219	110	73	292	146	97
\$185	\$185	\$247	\$375	\$375	\$500
19.3	19.3	19.3	12.7	12.7	12.7
\$1.62	\$1.12	\$0.74	\$1.87	\$1.37	\$1.03
\$1.45	\$0.95	\$0.62	\$1.51	\$1.01	\$0.76
\$0.16	\$0.16	\$0.12	\$0.36	\$0.36	\$0.27
\$4,245	\$2,931	\$2,583	\$6,569	\$4,817	\$4,830
\$106,137	\$73,297	\$64,585	\$164,233	\$120,433	\$120,744
\$378,800			\$378,800	,	

Car Type: Toilet Type: Sleeper 10-6

WTS 8300

Number of Passengers: **Number of Toilets:** 

22

Total Fleet Capital Cost:

17

Manufacturer:

Total Tank Capacity (gals):

Scenario:

450.0 ·

Expected

Scenario: ,	Expected		
Capital Cost - Equipment: - Installation:	\$94,488 \$87,000 \$7,488		
Maintenance Cost: - Labor: - Spare Parts:	\$6,282 \$3,672 \$2,610	,	
Hours per Trip: Trips per Day:	12 1	24 1	48 1
Waste Generation Data			
Waste Generated;	4.94	9.88	19.76
Flush Fluid Generated:	22.29	44.58	89.16
Capacity Adjustment:	6.81	13.61	27.23
Total Capacity Required per Day:	34.04	68.07	136.14
Pumpout Labor Cost:	\$0.2	\$0.4	\$0.9
Connect/Disconnect Labor Cost:	\$18.9	\$18.9	\$18.9
Cleaning Labor Cost:	\$102.0	\$102.0	\$102.0
Total Pumpout/Cleaning Cost per Day:	\$121.1	\$121.3	\$121.8
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 128	255 85
Waste Disposal Cost per Year:	\$118	\$118	\$158
Maximum Continuous Hours of Service:	158.7	158.7	158.7
Total Operating Cost per Service Hour:	\$12.18	\$7.14	\$4.11
- Trip Related:	\$10.13	\$5.09	\$2.58
- Non-Trip Related:	\$2.05	\$2.05	\$1.54
Total per-Car Operating Cost per Year:	\$37,347	\$21,902	\$16,812
Total Fleet Operating Cost per Year:	\$2,062,468	\$1,795,980	\$1,378,606

\$7,748,016

Favorable			Unfavorable		
\$94,488 \$87,000 \$7,488			\$94,488 \$87,000 \$7,488		
\$3,318 \$2,448 \$870			\$9,246 \$4,896 \$4,350		.,
12 1	24 1	48	12 1	24 1	48 1
4.94	9.88	19.76	4.94	9.88	19.76
17.37	34.74	69.47	28.95	57.89	115.79
5.58	11.15	22.31	8.47	16.94	33.89
27.88	55.77	111.54	42.36	84.72	169.43
\$0.2	\$0.3	\$0.7	\$0.3	\$0.6	\$1.2
\$18.9	\$18.9	\$18.9	\$18.9	\$18.9	\$18.9
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$121.1	\$121.2	\$121.6	\$121.2	\$121.5	\$122.1
219 219	219 110	219 73	292 292	292 146	292 97
\$83	\$83	\$111	\$168	\$168	\$224
193.7	193.7	193.7	127.5	127.5	127.5
\$11.38	\$6.35	\$3.51	\$12.79	\$7.75	\$4.57
\$10.12	\$5.08	\$2.56	\$10.15	\$5.11	\$2.59
\$1.26	\$1.26	\$0.95	\$2.64	\$2.64	\$1.98
\$29,916	\$16,678	\$12,305	\$44,802	\$27,150	\$21,351
\$2,453,127	\$1,367,566	\$1,009,022	\$3,673,726	\$2,226,311	\$1,750,748
\$7,748,016			\$7,748,016		

Car Type: Amcoach II
Toilet Type: WTS 8300

Toilet Type: WTS 8300 Manufacturer:

Number of Passengers: 59 Number of Toilets: 2

Total Tank Capacity (gals): , 100.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	26.49	52.98	79.47
Flush Fluid Generated:	119.55	239.11	358.66
Capacity Adjustment:	36.51	73.02	109.53
Total Capacity Required per Day:	182.55	365.11	547.66
Pumpout Labor Cost:	\$1.2	\$2.4	\$3.6
Connect/Disconnect Labor Cost:	\$8.4	\$16.8	\$25.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$21.6	\$31.2	\$40.8
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	<b>\$317</b>	\$423	\$476
Maximum Continuous Hours of Service:	13,1	13.1	13.1
Total Operating Cost per Service Hour:	\$1.28	\$0.96	\$0.86
- Trip Related:	\$1.00	\$0.75	\$0.67
- Non-Trip Related:	\$0.28	\$0.21	\$0.19
Total per-Car Operating Cost per Year:	\$3,928	\$3,931	\$3,933
Total Fleet Operating Cost per Year:	\$467,432	\$467,828	\$468,027
Total Fleet Capital Cost:	\$1,803,088		

Favorable			Unfavorable	,	
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		
\$428 \$288 \$140			\$1,276 \$576 \$700		
24 1	48 1	72 1	24	48 1	72 1
26.49	52.98	79.47	26.49	52.98	79.47
93.16	186.32	279.47	155.26	310.53	465.79
29.91	59.82	89.74	45.44	90.88	136.32
149.56	299.12	448.68	227.19	454.39	681.58
\$0.9	\$1.9	\$2.8	\$1.6	\$3.1	\$4.7
\$8.4	\$12.6	\$21.0	\$12.6	\$21.0	\$29.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$21.3	\$26.5	\$35.8	\$26.2	\$36.1	\$46.1
219 110	219 73	219 55	292 146	292 97	292 73
\$223	\$297	\$334	\$451	\$601	\$677
16.0	16.0	16.0	10.6	10.6	10.6
\$1.14	\$0.76	\$0.69	\$1.58	\$1.15	\$1.01
\$0.97	\$0.64	\$0.58	\$1.22	\$0.88	\$0.77
\$0.16	\$0.12	\$0.11	\$0.36	\$0.27	\$0.24
\$2,987	\$2,657	\$2,722	\$5,545	\$5,392	\$5,315
\$355,398	\$316,157	\$323,900	\$659,902	\$641,616	\$632,473
\$1,803,088			\$1,803,088	,	

Car Type: Slumbercoach 24-8 WTS 8300 Toilet Type:

Number of Passengers: 40 Number of Toilets: 32

Total Tank Capacity (gals): 800.0

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	ected

Manufacturer:

Scenario:	Expected	a.	
Capital Cost - Equipment: - Installation:	\$173,824 \$160,000 \$13,824		
Maintenance Cost: - Labor: - Spare Parts:	\$11,712 \$6,912 \$4,800		1
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	17.96	35.92	53.88
Flush Fluid Generated:	81.05	162.11	243.16
Capacity Adjustment:	24.75	49.51	74.26
Total Capacity Required per Day:	123.77	247.53	371.30
Pumpout Labor Cost:	\$0.8	\$1.6	\$2.4
Connect/Disconnect Labor Cost:	\$33.6	\$33.6	\$33.6
Cleaning Labor Cost:	\$192.0	\$192.0	\$192.0
Total Pumpout/Cleaning Cost per Day:	\$226.4	\$227.2	\$228.0
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 85	255 64
Waste Disposal Cost per Year:	\$215	\$287	\$323
Maximum Continuous Hours of Service:	155.1	155.1	155.1
Total Operating Cost per Service Hour:	\$13.32	\$7.67	\$5.78
- Trip Related:	\$9.50	\$4.80	\$3.24
- Non-Trip Related:	\$3.82	\$2.86	\$2.55
Total per-Car Operating Cost per Year:	\$40,851	\$31,350	\$26,600
Total Fleet Operating Cost per Year:	\$653,616	\$501,606	\$425,501
Total Fleet Capital Cost:	\$2,781,184	** ·* · **	

#### **Favorable** Unfavorable \$173,824 \$173,824 \$160,000 \$160,000 \$13,824 \$13,824 \$6,208 \$17,216 \$4,608 \$1,600 \$9,216 \$8,000 72 24 48 72 24 48 17.96 35.92 53.88 17.96 35.92 53.88 63.16 126.32 189.47 105.26 210.53 315.79 20.28 40.56 60.84 30.81 61.61 92.42 202.79 304.19 308.06 462.09 101.40 154.03 \$3.2 \$0.6 \$1.3 \$1.9 \$1.1 \$2.1 \$33.6 \$33.6 \$33.6 \$33.6 \$33.6 \$33.6 \$192.0 \$192.0 \$192.0 \$192.0 \$192.0 \$192.0 \$226.2 \$226.9 \$227.5 \$226.7 \$228.8 \$227.7 219 292 292 292 219 219 146 97 73 110 73 55 \$151 \$201 \$227 \$306 \$408 \$459 189.4 189.4 124.7 189.4 124.7 124.7 \$11.85 \$6.56 \$4.79 \$14.44 \$8.52 \$6.54 \$9,48 \$4.78 \$3,22 \$9.53 \$4.83 \$3.26 \$2.36 \$1.77 \$1.57 \$4.91 \$3.68 \$3.28 \$31,131 \$22,970 \$18,890 \$34,374 \$50,613 \$39,787 \$636,594 \$498,102 \$367,526 \$302,237 \$809,810 \$549,985 \$2,781,184 \$2,781,184

Car Type: Viewliner-Sleeper Toilet Type: WTS 8300

Tollet Type. WTS 6300

Manufacturer:

Number of Passengers: 34
Number of Toilets: 17
Total Tank Capacity (gals): 450.0

Scenario: Expected

Capital Cost - Equipment: - Installation:	\$94,488 \$87,000 \$7,488		
Maintenance Cost: - Labor: - Spare Parts:	\$6,282 \$3,672 \$2,610		
Hours per Trip: Trips per Day:	24 1	48 1	72 1
Waste Generation Data			
Waste Generated:	15.27	30.53	45.80
Flush Fluid Generated:	68.89	137.79	206.68
Capacity Adjustment:	21.04	42.08	63.12
Total Capacity Required per Day:	105.20	210.40	315.60
Pumpout Labor Cost:	\$0.7	\$1.4	\$2.1
Connect/Disconnect Labor Cost:	\$18.9	\$18.9	\$18.9
Cleaning Labor Cost:	\$102.0	\$102.0	\$102.0
Total Pumpout/Cleaning Cost per Day:	\$121.6	\$122.3	\$123.0
Days Operated per Year: Clean-out Cycles per Year:	255 128	255 . 85	255 64
Waste Disposal Cost per Year:	\$183	\$244	\$274
Maximum Continuous Hours of Service:	102.7	102.7	102.7
Total Operating Cost per Service Hour:	\$7.17	\$4.14	\$3.13
- Trip Related:	\$5.13	\$2.61	\$1.77
- Non-Trip Related:	\$2.05	<b>\$1.54</b>	\$1.37
Total per-Car Operating Cost per Year:	\$21,998	\$16,940	\$14,411
Total Fleet Operating Cost per Year:	\$43,996	\$33,879	\$28,821
Total Fleet Capital Cost:	\$188,976		

Favorable			Unfavorable		
\$94,488 \$87,000 \$7,488			\$94,488 \$87,000 \$7,488		
\$3,318 \$2,448 \$870			\$9,246 \$4,896 \$4,350		
24 1	48 1	72 1	24	<b>48</b> 1	72 1
15.27	30.53	45.80	15.27	30.53	45.80
53.68	107.37	161.05	89.47	178.95	268.42
17.24	34.48	51.71	26.18	52.37	78.55
86.19	172.38	258.56	130.92	261.85	392.77
\$0.5	\$1.1	\$1.6	\$0.9	\$1.8	\$2.7
\$18.9	\$18.9	\$18.9	\$18.9	\$18.9	\$18.9
\$102.0	\$102.0	\$102.0	\$102.0	\$102.0	\$102.0
\$121.4	\$122.0	\$122.5	\$121.8	\$122.7	\$123.6
219 110	219 73	219 55	292 146	292 97	292 73
\$128	\$171	\$193	\$260	\$347	\$390
125.3	125.3	125.3	82.5	82.5	82.5
\$6.37	\$3.54	\$2.59	\$7.79	\$4.61	\$3.55
\$5.11	\$2.59	\$1.75	\$5.15	\$2.63	\$1.79
\$1.26	\$0.95	\$0.84	\$2.64	\$1.98	\$1.76
\$16,744	\$12,393	\$10,218	\$27,288	\$21,534	\$18,658
\$33,487	\$24,786	\$20,436	\$54,576	\$43,069	\$37,315
\$188,976			\$188,976		

Car Type: Amcafe
Toilet Type: WTS 8300

oilet Type: WTS 8300 Manufacturer:

Number of Passengers: 53 Number of Toilets: 2

Total Tank Capacity (gals): 100.0

Scenario:	Expected

Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated:	15.86	15.86	23.80
Flush Fluid Generated:	71.60	71.60	107.39
Capacity Adjustment:	21.87	21.87	32.80
Total Capacity Required per Day:	109.33	109.33	163.99
Pumpout Labor Cost:	\$0.7	\$0.7	\$1.1
Connect/Disconnect Labor Cost:	\$8.4	\$8.4	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$21.1	\$21.1	\$21.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	, \$380	\$380	, \$285
Maximum Continuous Hours of Service:	14.6	14.6	14.6
Total Operating Cost per Service Hour:	\$1.62	\$1.62	\$1.27
- Trip Related:	\$1.41	\$1.41	\$0.99
- Non-Trip Related:	\$0.21	\$0.21	\$0.28
Total per-Car Operating Cost per Year:	\$6,627	\$6,627	\$3,880
otal Fleet Operating Cost per Year:	\$298,216	\$298,216	\$174,610
Total Fleet Capital Cost:	\$681,840		

Favorable			Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		
\$428 \$288 \$140		-	\$1,276 \$576 \$700		
8 2	16 1	24	. 8 2	16 1	24
15.86 55.79	15.86 55.79	23.80 83.68	15.86 92.98	15.86 92.98	23.80 139.47
17.91	17.91	26.87	27.21	27.21	40.82
89.57	89.57	134.35	136.06	136.06	204.09
\$0.6	\$0.6	\$0.8	\$0.9	\$0.9	\$1.4
\$4.2	\$4.2	\$8.4	* \$8.4	\$8.4	\$12.6
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.8	\$16.8	\$21.2	\$21.3	\$21.3	\$26.0
219 219	219 219	219 110	292 292	292 292	292 146
\$267	\$267	\$200	\$540	\$540	\$405
17.9	17.9	17.9	. 11.8	11.8	11.8
\$1.25	\$1.25	\$1.12	\$1.72	\$1.72	\$1.56
\$1.12	\$1.12	\$0.96	\$1.45	\$1.45	\$1.20
\$0.12	\$0.12	\$0.16	\$0.27	\$0.27	\$0.36
\$4,365	\$4,365	\$2,954	\$8,045	\$8,045	\$5,476
\$196,414	\$196,414	\$132,908	\$362,008	\$362,008	\$246,441
\$681,840			\$681,840		

Car Type: Amcoach Toilet Type: WTS 8300

Manufacturer:

Number of Passengers: 84
Number of Toilets: 2
Total Tank Capacity (gals): 100.0

Scenario: Expected

Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data	· ·		
Waste Generated:	25.14	25.14	37.72
Flush Fluid Generated:	113.47	113.47	170.21
Capacity Adjustment:	34.65	34.65	51.98
Total Capacity Required per Day:	173.27	173.27	259.91
Pumpout Labor Cost:	\$1. <del>1</del>	\$1.1	\$1.7
Connect/Disconnect Labor Cost:	\$8.4	\$8.4	\$12.6
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$21.5	\$21.5	\$26.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$602	\$602	\$452
Maximum Continuous Hours of Service:	9.2	9.2	9.2
Total Operating Cost per Service Hour:	\$1.70	\$1.70	\$1,52
- Trip Related:	\$1.49	\$1.49	\$1.24
- Non-Trip Related:	\$0.21	\$0.21	\$0.28
Total per-Car Operating Cost per Year:	\$6,956	, \$6,956	\$4,664
Total Fleet Operating Cost per Year:	\$1,850,352	\$1,850,352	\$1,240,533
Total Fleet Capital Cost:	\$4,030,432		

Favorable			Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		
\$428 \$288 \$140			\$1,276 \$576 \$700		
8 2	16 1	24 1		_ 16 1	24 1
25.14 88.42	25.14 88.42	37.72 132.63	25.14 147.37	25.14 147.37	37.72 221.05
28.39	28.39	42.59	43.13	43.13	64.69
141.96	141.96	212.93	215.64	215.64	323.46
\$0.9	\$0.9	<b>\$1.3</b>	\$1.5	61.5	\$2.2
\$0.9 \$8.4	\$0.9 \$8.4	·		\$1.5	. 1
	-	\$12.6	\$12.6	\$12.6	\$16.8
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$21.3	\$21.3	\$25.9	\$26.1	\$26.1	\$31.0
219 219	219 219	219 110	292 292	292 292	292 146
\$423	\$423	\$317	\$856	\$856	\$642
11.3	11.3	11.3	7.4	7.4	7.4
\$1.57	\$1.57	\$1.36	\$2.09	\$2.09	\$1.84
\$1.45	\$1.45	\$1.20	\$1.81	\$1.81	\$1.48
\$0.12	\$0.12	\$0:16	\$0.27	\$0.27	\$0.36
\$5,512	\$5,512	\$3,584	\$9,746	\$9,746	\$6,446
\$1,466,204	\$1,466,204	\$953,353	\$2,592,401	\$2,592,401	\$1,714,583
\$4,030,432			\$4,030,432		,

Car Type: Amclub WTS 8300 Toilet Type:

Manufacturer:

Number of Passengers: Number of Toilets: 2 Total Tank Capacity (gals): 100.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	8 2	16 1	24 1
Waste Generation Data			
Waste Generated:	12.27	12.27	18.41
Flush Fluid Generated:	55.39	55.39	83.08
Capacity Adjustment:	16.91	16.91	25.37
Total Capacity Required per Day:	84.57	84.57	126.86
Pumpout Labor Cost:	\$0.6	\$0.6	\$0.8
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.8	\$16.8	\$21.2
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 128
Waste Disposal Cost per Year:	\$294	\$294	\$220
Maximum Continuous Hours of Service:	18.9	• 18.9	18.9
Total Operating Cost per Service Hour:	\$1.33	\$1.33	\$1.23
- Trip Related:	\$1.12	\$1.12	\$0.96
- Non-Trip Related:	\$0.21	\$0.21	\$0.28
Total per-Car Operating Cost per Year:	\$5,426	\$5,426	\$3,785
Total Fleet Operating Cost per Year:	\$130,236	\$130,236	\$90,831
Total Fleet Capital Cost:	\$363,648		

41

Favorable			Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152	-	
\$428 \$288 \$140		.	\$1,276 \$576 \$700	·	
8 2	16 1	24	8 . 2	16 . 1	24
12.27 43.16	12.27 43.16	18.41 64.74	12.27 71.93	12.27 71.93	18.41 107.89
13.86	13.86	20.79	21.05	21.05	31.58
69.29	69.29	103.93	105.25	105.25	157.88
\$0.4	\$0.4	\$0.6	\$0.7	\$0.7	\$1.1
\$4.2	\$4.2	\$8.4	\$8.4	\$8.4	\$8.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.6	\$16.6	\$21.0	\$21.1	\$21.1	\$21.5
219 219	219 219	219 110	292 292	292 292	292 146
\$206	\$206	\$155	\$418	\$418,	\$313
23.1	23.1	23.1	15.2	15.2	15.2
\$1.22	\$1.22	\$1.10	\$1.68	\$1.68	\$1.35
\$1.10	\$1.10	\$0.94	\$1.41	\$1.41	\$0.98
\$0.12	\$0.12	\$0.16	\$0.27	\$0.27	\$0.36
\$4,277	\$4,277	\$2,887	\$7,861	\$7,861	\$4,725
\$102,640	\$102,640	\$69,299	\$188,660	\$188,660	\$113,410
\$363,648			\$363,648		

Car Type: Met-Srvc Dinette

Toilet Type: WTS 8300

Manufacturer:

Number of Passengers: 23

Number of Toilets: 2

Total Tank Capacity (gals): 100.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	· 2 5	12 ` 1	7 2
Waste Generation Data			
Waste Generated;	4.30	5.16	6.02
Flush Fluid Generated:	19.42	23.30	27.19
Capacity Adjustment:	5.93	7.12	8.30
Total Capacity Required per Day:	29.65	35.58	41.51
Pumpout Labor Cost:	\$0.2	\$0.2	\$0.3
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.4	\$16.4	\$16.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$103	\$124	\$144
Maximum Continuous Hours of Service:	33.7	33.7	33.7
Total Operating Cost per Service Hour:	\$2.01	\$1.69	\$1.46
- Trip Related:	\$1.68	\$1.41	\$1.22
- Non-Trip Related:	\$0.33	\$0.28	\$0.24
Total per-Car Operating Cost per Year:	\$5,144	\$5,174	\$5,205
Total Fleet Operating Co⁻t per Year:	\$66,869	\$67,266	\$67,6€3
Total Fleet Capital Cost:	\$196,976		

Favorable			Unfavorable		
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		
\$428 \$288 \$140			\$1,276 \$576 \$700		
. 2 5	12 1	7 2	2 5	12 1	7 2
4.30	5.16	6.02	4.30	5.16	6.02
15.13	18.16	21.18	25.22	30.26	35.31
4.86	5.83	6.80	7.38	8.86	10.33
24.29	29.15	34.01	36.90	44.28	51.66
\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.4
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.4	\$16.4	\$16.4	\$16.5	\$16.5	\$16.6
219 219	219 219	219 219	292 292	292 292	292 292
\$72	\$87	\$101	\$147	\$176	\$205
41.2	41.2	41.2	27.1	27.1	27.1
\$1.86	\$1.56	\$1.34	\$2.13	\$1.79	\$1.54
\$1.67	\$1.40	\$1.21	\$1.70	\$1.43	\$1.23
\$0.20	\$0.16	\$0.14	\$0.44	\$0.36	\$0.31
\$4,081	\$4,102	\$4,123	\$6,227	\$6,271	\$6,315
\$53,057	\$53,331	\$53,605	\$80,946	\$81,518	\$82,091
\$196,976			\$196,976	•	

Car Type: Met-Srvc Coach Toilet Type: WTS 8300

Number of Passengers: 60

**Number of Toilets:** 2 Total Tank Capacity (gals): 100.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	11.23	13.47	15.72
Flush Fluid Generated:	50.66	60.79	70.92
Capacity Adjustment:	15.47	18.56	21.66
Total Capacity Required per Day:	77.35	92.82	108.30
Pumpout Labor Cost:	\$0.5	\$0.6	\$0.7
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.7	\$16.8	\$21.1
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$269	\$323	\$376
Maximum Continuous Hours of Service:	12.9	12.9	12.9
Total Operating Cost per Service Hour:	\$2.11	\$1.78	\$1.85
- Trip Related:	\$1.78	\$1.51	\$1.61
- Non-Trip Related:	\$0.33	\$0.28	\$0.24
Total per-Car Operating Cost per Year:	\$5,389	\$5,469	\$6,622
Total Fleet Operating Cost per Year:	\$269,466	\$273,448	\$331,085
Total Fleet Capital Cost:	\$757,600		

Manufacturer:

į	Favorable			Unfavorable		
	\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		,
	\$428 \$288 \$140			\$1,276 \$576 \$700		
	2 5	12 1	7 2	2 5	12 1	7 2
	11.23	13.47	15.72	11.23	13.47	15.72
	39.47	47.37	55.26	65.79	78.95	92.11
	12.67	15.21	17.74	19.25	23.10	26.96
	63.37	76.05	88.72	96.27	115.52	134.78
	\$0.4	\$0.5	\$0.6	\$0.7	\$0.8	\$0.9
	\$4.2	\$4.2	\$4.2	\$4.2	\$8.4	\$8.4
	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
	\$16.6	\$16.7	\$16.8	\$16.9	\$21.2	\$21.3
	219 219	219 219	219 219	292 292	292 292	292 292
	\$189	\$227	\$264	\$382	\$459	\$535
	15.8	15.8	15.8	10.4	10.4	10.4
	\$1.94	\$1.64	\$1.42	\$2.25	\$2.26	\$1.97
	\$1.75	\$1.48	\$1.28	\$1.82	\$1.90	\$1.65
•	\$0.20	\$0.16	\$0.14	\$0.44	\$0.36	\$0.31
	\$4,251	\$4,306	\$4,361	\$6,581	\$7,922	\$8,037
	\$212,550	\$215,302	\$218,054	\$329,040	\$396,104	\$401,848
	\$757,600			\$757,600		

**Total Fleet Capital Cost:** 

Car Type: Met-Srvc Club

Toilet Type: WTS 8300

Manufacturer:

Number of Passengers: 33
Number of Toilets: 2
Total Tank Capacity (gals): 100.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420		
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated;	6.17	7.41	8.64
Flush Fluid Generated:	27.86	33.43	39.01
Capacity Adjustment:	8.51	10.21	11.91
Total Capacity Required per Day:	42.54	51.05	59.56
Pumpout Labor Cost:	\$0.3	\$0.3	\$0.4
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.5	\$16.5	\$16.6
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$148	\$177	\$207
Maximum Continuous Hours of Service:	23.5	23.5	23.5
Total Operating Cost per Service Hour:	\$2.04	\$1.71	\$1.48
- Trip Related:	\$1.71	\$1.44	\$1.24
- Non-Trip Related:	\$0.33	\$0.28	\$0.24
Total per-Car Operating Cost per Year:	\$5,210	\$5,254	\$5,298
Tctal Fleet Operating Cost per Year:	\$67,732	\$68,301	\$68,870

\$196,976

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Favorable			Unfavorable	•	
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152	·	
\$428 \$288 \$140			\$1,276 \$576 \$700		
2 5	12 1	7 2	2 5	12° 1	7 2
6.17	7.41	8.64	6.17	7.41	8.64
21.71	26.05	30.39	36.18	43.42	50.66
6.97	8.37	9.76	10.59	12.71	14.83
34.86	41.83	48.80	52.95	63.54	74.13
\$0.2	\$0.3	\$0.3	\$0.4	\$0.4	\$0.5
\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
\$12.0	\$12.0	\$12.0	\$12.0	\$12:0	\$12.0
\$16.4	\$16.5	\$16.5	\$16.6	\$16.6	\$16.7
219 219	219 219	219 219	292 292	292 292	292 292 ,
\$104	\$125	\$145	\$210	\$252	ូ\$294
28.7	28.7	28.7	18.9	18.9	18.9
\$1.88	\$1.58	\$1.37	\$2.17	\$1.82	\$1.58
\$1.69	\$1.42	\$1.23	\$1.73	\$1.46	\$1.27
\$0.20	\$0.16	\$0.14	\$0.44	\$0.36	\$0.31
\$4,127	\$4,157	\$4,188	\$6,322	\$6,386	\$6,449
\$53,653	\$54,047	\$54,440	\$82,190	\$83,012	\$83,833
\$196,976			\$196,976		

Total Fleet Capital Cost:

Car Type: Amdinette
Toilet Type: WTS 8300

Number of Passengers: 23
Number of Toilets: 2
Total Tank Capacity (gals): 100.0

Total Tank Capacity (gals):	100.0		
Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152	· · · · · · · · · · · · · · · · · · ·	
Maintenance Cost: - Labor: - Spare Parts:	\$852 \$432 \$420	•	
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	4.30	5.16	6.02
Flush Fluid Generated:	19.42	23.30	27.19
Capacity Adjustment:	5.93	7.12	8.30
Total Capacity Required per Day:	29.65	35.58	41.51
Pumpout Labor Cost:	\$0.2	\$0.2	\$0.3
Connect/Disconnect Labor Cost:	\$4.2	\$4.2	\$4.2
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.4	\$16.4	\$16.5
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$103	\$124	\$144
Maximum Continuous Hours of Service:	33.7	33.7	33.7
Total Operating Cost per Service Hour:	\$2.01	\$1.69	\$1.46
- Trip Related:	\$1.68	\$1.41	\$1.22
- Non-Trip Related:	\$0.33	\$0.28	\$0.24
Total per-Car Operating Cost per Year:	\$5,144	\$5,174	\$5,205
Total Fleet Operating Cost per Year:	\$125,594	\$129,357	\$130,120

\$378,800

Manufacturer:

\$15,152 \$14,000 \$1,152 \$428 \$288 \$140 \$2 \$2 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,152 \$1,100 \$1,276 \$5,76 \$700 \$700 \$2 \$1,276 \$5,76 \$700 \$1,276 \$5,700 \$1,276 \$5,700 \$1,276 \$1,276 \$5,700 \$1,276 \$1,2776 \$1,276 \$1,276 \$1,276 \$1,276 \$1,276 \$1,276 \$1,276 \$1,276 \$1,2776 \$1,2	Favorable			Unfavorable		
\$288 \$140 2 12 7 5 1 2 5 1 2 4.30 5.16 6.02 15.13 18.16 21.18 25.22 30.26 35.31 4.86 5.83 6.80 7.38 8.86 10.33 24.29 29.15 34.01 36.90 44.28 51.66 \$0.2 \$0.2 \$0.2 \$0.2 \$0.3 \$0.3 \$0.4 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$16.4 \$16.4 \$16.4 \$16.4 \$16.5 \$16.5 \$16.6 219 219 219 219 292 292 292 \$72 \$87 \$101 \$147 \$176 \$205 41.2 41.2 41.2 41.2 \$27.1 27.1 27.1 \$1.86 \$1.56 \$1.34 \$1.54 \$2.13 \$1.79 \$1.54 \$1.67 \$1.40 \$1.21 \$1.70 \$1.43 \$1.23 \$0.20 \$0.16 \$0.14 \$0.44 \$0.36 \$0.31	\$14,000			\$14.000	o	
4.30       5.16       6.02       4.30       5.16       6.02         15.13       18.16       21.18       25.22       30.26       35.31         4.86       5.83       6.80       7.38       8.86       10.33         24.29       29.15       34.01       36.90       44.28       51.66         \$0.2       \$0.2       \$0.2       \$0.3       \$0.3       \$0.4         \$4.2       \$4.2       \$4.2       \$4.2       \$4.2         \$12.0       \$12.0       \$12.0       \$12.0       \$12.0         \$16.4       \$16.4       \$16.5       \$16.5       \$16.6         219       219       219       292       292       292         219       219       219       292       292       292         \$72       \$87       \$101       \$147       \$176       \$205         41.2       41.2       41.2       27.1       27.1       27.1         \$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.	\$288			l \$576	•	
15.13       18.16       21.18       25.22       30.26       35.31         4.86       5.83       6.80       7.38       8.86       10.33         24.29       29.15       34.01       36.90       44.28       51.66         \$0.2       \$0.2       \$0.2       \$0.3       \$0.3       \$0.4         \$4.2       \$4.2       \$4.2       \$4.2       \$4.2         \$12.0       \$12.0       \$12.0       \$12.0       \$12.0         \$16.4       \$16.4       \$16.4       \$16.5       \$16.5       \$16.6         219       219       219       292       292       292       292         219       219       219       292       292       292       292         \$72       \$87       \$101       \$147       \$176       \$205         41.2       41.2       41.2       27.1       27.1       27.1         \$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$0.44       \$0.36       \$0.31         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31	2 5	12 1	7 2	2 5	12 1	7 2
4.86       5.83       6.80       7.38       8.86       10.33         24.29       29.15       34.01       36.90       44.28       51.66         \$0.2       \$0.2       \$0.2       \$0.3       \$0.3       \$0.4         \$4.2       \$4.2       \$4.2       \$4.2       \$4.2       \$4.2         \$12.0       \$12.0       \$12.0       \$12.0       \$12.0       \$12.0       \$12.0         \$16.4       \$16.4       \$16.4       \$16.5       \$16.5       \$16.5       \$16.6         219       219       219       292       292       292       292         219       219       219       292       292       292       292         \$72       \$87       \$101       \$147       \$176       \$205         41.2       41.2       41.2       27.1       27.1       27.1         \$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31			6.02	4.30		
24.29       29.15       34.01       36.90       44.28       51.66         \$0.2       \$0.2       \$0.2       \$0.3       \$0.3       \$0.4         \$4.2       \$4.2       \$4.2       \$4.2       \$4.2       \$4.2         \$12.0       \$12.0       \$12.0       \$12.0       \$12.0       \$12.0       \$12.0         \$16.4       \$16.4       \$16.4       \$16.5       \$16.5       \$16.6         219       219       219       292       292       292       292         219       219       219       292       292       292       292       292         \$72       \$87       \$101       \$147       \$176       \$205         41.2       41.2       41.2       27.1       27.1       27.1         \$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31	15.13	18.16	21.18	25.22	30.26	35.31
\$0.2 \$0.2 \$0.2 \$0.2 \$0.3 \$0.3 \$0.4 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$4					7	
\$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$4.2 \$12.0	24.29	29.15	34.01	36.90	44.28	51.66
\$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$12.0 \$16.4 \$16.4 \$16.4 \$16.4 \$16.5 \$16.5 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.6 \$16.5 \$16.5 \$16.6 \$16.6 \$16.5 \$16.5 \$16.6 \$16.6 \$16.5 \$16.5 \$16.6 \$16.5 \$16.6 \$16.6 \$16.5 \$16.5 \$16.5 \$16.6 \$16.6 \$16.6 \$16.5 \$16.5 \$16.5 \$16.6 \$16.6 \$16.6 \$16.5 \$16.5 \$16.5 \$16.6 \$16.6 \$16.5	\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.4
\$16.4 \$16.4 \$16.4 \$16.5 \$16.5 \$16.6 \$16.6 \$219 219 219 219 292 292 292 292 292 \$72 \$87 \$101 \$147 \$176 \$205 \$1.86 \$1.56 \$1.34 \$1.67 \$1.40 \$1.21 \$1.67 \$1.40 \$1.21 \$0.20 \$0.16 \$0.14 \$0.36 \$0.31	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2
219       219       219       292       292       292       292         \$72       \$87       \$101       \$147       \$176       \$205         41.2       41.2       41.2       27.1       27.1       27.1         \$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	<b>\$12.0</b>
219       219       219       292       292       292       292         \$72       \$87       \$101       \$147       \$176       \$205         41.2       41.2       41.2       27.1       27.1       27.1         \$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31	<b>\$16.4</b>	\$16.4	\$16.4	\$16.5	\$16.5	\$16.6
41.2       41.2       41.2       27.1       27.1       27.1         \$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31				292 292	292 292	292 292
\$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31	\$72	\$87	\$101	\$147	\$176	\$205
\$1.86       \$1.56       \$1.34       \$2.13       \$1.79       \$1.54         \$1.67       \$1.40       \$1.21       \$1.70       \$1.43       \$1.23         \$0.20       \$0.16       \$0.14       \$0.44       \$0.36       \$0.31	41.2	41.2	41.2	27.1	27.1	27.1
\$1.67 \$1.40 \$1.21 \$1.70 \$1.43 \$1.23 \$0.20 \$0.16 \$0.14 \$0.44 \$0.36 \$0.31		\$1.56				
\$0.20 \$0.16 \$0.14 \$0.44 \$0.36 \$0.31	\$1.67	\$1.40	\$1.21	\$1.70	\$1.43	
\$4.081 \$4.102 \$4.123 \$6.227 \$6.274 \$6.245	\$0.20	\$0.16	\$0.14	\$0.44	\$0.36	
	\$4,081	\$4,102	\$4,123	\$6,227	\$6,271	\$6,315
\$102,032 \$102,560 \$103,087 \$155,665 \$156,766 \$157,867	\$102,032	\$102,560	\$103,087	\$155,665	\$156,766	\$157,867
\$378,800	\$378,800			\$378,800		

**Total Fleet Capital Cost:** 

Car Type: Amcoach
Toilet Type: WTS 8300 Manufacturer:

Number of Passengers: 60
Number of Toilets: 2
Total Tank Capacity (gals): 100.0

Scenario: Expected Capital Cost \$15,152 - Equipment: \$14,000 - Installation: \$1,152 Maintenance Cost: \$852 - Labor: \$432 - Spare Parts: \$420 Hours per Trip: 12 Trips per Day: Waste Generation Data Waste Generated: 11.23 13.47 15.72 Flush Fluid Generated: 50.66 60.79 70.92 Capacity Adjustment: 15.47 18.56 21.66 Total Capacity Required per Day: 77.35 92.82 108.30 Pumpout Labor Cost: \$0.5 \$0.6 \$0.7 Connect/Disconnect Labor Cost: \$4.2 \$4.2 \$8.4 Cleaning Labor Cost: \$12.0 \$12.0 \$12.0 Total Pumpout/Cleaning Cost per Day: \$16.7 \$16.8 \$21.1 Days Operated per Year: 255 255 255 Clean-out Cycles per Year: 255 255 255 Waste Disposal Cost per Year: \$269 \$323 \$376 Maximum Continuous Hours of Service: 12.9 12.9 12.9 Total Operating Cost per Service Hour: \$2.11 \$1.78 \$1.85 - Trip Related: \$1.78 \$1.51 \$1.61 - Non-Trip Related: \$0.33 \$0.28 \$0.24 Total per-Car Operating Cost per Year: \$5,389 \$5,469 \$6,622 Total Fleet Operating Cost per Year: \$167,069 \$169,538 \$205,273

\$469,712

Favorable	<i>(</i>		Unfavorable	•	•
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		,
\$428 \$288 \$140			\$1,276 \$576 \$700		
2 5	12 1	7 2	2 5	12	7 2
11.23	13.47	15.72	11.23	13.47	15.72
39.47	47.37	55.26	65.79	78.95	92.11
12.67	15.21	17.74	19.25	23.10	26.96
63.37	76.05	88.72	96.27	115.52	134.78
\$0.4	\$0.5	\$0.6	\$0.7	\$0.8	\$0.9
\$4.2	\$4.2	\$4.2	\$4.2	\$8.4	\$8.4
\$12.0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.6	\$16.7	\$16.8	\$16.9	\$21.2	\$21.3 <sup>-</sup>
219 219	219 219	219 219	292 292	292 292	292 292
\$189	\$227	\$264	\$382	\$459	\$535
15.8	15.8	15.8	10.4	10.4	10.4
\$1.94	\$1.64	\$1.42	\$2.25	\$2.26	\$1.97
\$1.75	\$1.48	\$1.28	\$1.82	\$1.90	\$1.65
\$0.20	\$0.16	\$0.14	\$0.44	\$0.36	\$0.31
\$4,251	\$4,306	\$4,361	\$6,581	\$7,922	\$8,037
\$131,781	\$133,487	\$135,193	\$204,005	\$245,585	\$249,146
\$469,712			\$469,712		

Car Type: Turbo Power Club

Toilet Type: WTS 8300

/TS 8300 Manufacturer:

Number of Passengers: 27 Number of Toilets: 1

Total Tank Capacity (gals): 50.0

Scenario:	Expected		
Capital Cost - Equipment: - Installation:	\$7,576 \$7,000 \$576		
Maintenance Cost: - Labor: - Spare Parts:	\$426 \$216 \$210		·
Hours per Trip: Trips per Day:	2 5	12 1	7 2
Waste Generation Data			
Waste Generated:	5.05	6.06	7.07
Flush Fluid Generated:	22.80	27.36	31.91
Capacity Adjustment:	6. <del>9</del> 6 .	8.35	9.75
Total Capacity Required per Day:	34.81	41.77	48.73
Pumpout Labor Cost:	\$0.2	\$0.3	\$0.3
Connect/Disconnect Labor Cost:	\$2.1	\$2,1	\$2.1
Cleaning Labor Cost:	\$6.0	\$6.0	\$6.0
Total Pumpout/Cleaning Cost per Day:	\$8.3	\$8.4	\$8.4
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$121	\$145	\$169
Maximum Continuous Hours of Service:	14.4	14.4	14.4
Total Operating Cost per Service Hour:	\$1.05	\$0.88	\$0.77
- Trip Related:	\$0.88	\$0.75	\$0.65
- Non-Trip Related:	\$0.17	\$0.14	\$0.12
Total per-Car Operating Cost per Year:	\$2,675	\$2,711	\$2,746
Total Fleet Operating Cost per Year:	\$16,048	\$16,264	\$16,479
Total Fleet Capital Cost:	\$45,456		

Favorable			Unfavorable		
\$7,576 \$7,000 \$576			\$7,576 \$7,000 \$576		
\$214 \$144 \$70			\$638 \$288 \$350		
. 2 5	12 1	7 2	2 5	12 1	7 2
		. 3	1		
5.05	6.06	7.07	5.05	6.06	7.07
17.76	21.32	24.87	29.61	35.53	41.45
5.70	6.84	7.99	8.66	10.40	12.13
28.52	34.22	39.93	43.32	51.98	60.65
\$0.2	\$0.2	\$0.2	\$0.3	\$0.4	\$0.4
\$2.1	\$2.1	\$2.1	\$2.1	\$4.2	\$4.2
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
\$8.3	\$8.3	\$8.3	\$8.4	\$10.6	\$10.6
219 219	219 219	219 219	292 292	292 292	292 292
\$85	\$102	\$119	\$172	\$206	\$241
17.5	17.5	17.5	11.5	11.5	11.5
\$0.96	\$0.81	\$0.70	\$1.12	\$1.12	\$0.97
\$0.87	\$0.73	\$0.64	\$0.90	\$0.94	\$0.82
\$0.10	\$0.08	\$0.07	\$0.22	\$0.18	\$0.16
\$2,112	\$2,137	\$2,161	\$3,262	\$3,927	\$3,978
\$12,670	\$12,819	\$12,968	\$19,570	\$23,559	\$23,870
\$45,456			\$45,456		

Car Type: Turbo Coach

Toilet Type: WTS 8300 Manufacturer:

Number of Passengers: 72 Number of Toilets: 2

Total Tank Capacity (gals): 100.0

Scenario:		i	Expected
			•

·* ·	•		
Capital Cost - Equipment: - Installation:	\$15,152 \$14,000 \$1,152		·
Maintenance Cost:	\$852	٠.	
- Labor: - Spare Parts:	\$432 \$420		
Hours per Trip; Trips per Day:	2 5	.12 1	7 2
Waste Generation Data			
Waste Generated:	13,47	16.16	18.86
Flush Fluid Generated:	60.79	72.95	85.11
Capacity Adjustment:	18.56`	22.28	25.99
Total Capacity Required per Day:	92.82	111.39	129.95
Pumpout Labor Cost:	\$0.6	\$0.7	\$0.9
Connect/Disconnect Labor Cost:	\$4.2	\$8.4	\$8.4
Cleaning Labor Cost:	\$12.0	\$12.0	\$12.0
Total Pumpout/Cleaning Cost per Day:	\$16.8	\$21.1	\$21.3
Days Operated per Year: Clean-out Cycles per Year:	255 255	255 255	255 255
Waste Disposal Cost per Year:	\$323	\$387	\$452
Maximum Continuous Hours of Service:	10.8	10.8	10.8
Total Operating Cost per Service Hour:	\$2.14	\$2.16	\$1.88
- Trip Related:	\$1.81	\$1.89	\$1.64
- Non-Trip Related:	\$0.33	\$0.28	\$0.24
Total per-Car Operating Cost per Year:	\$5,469	\$6,638	\$6,733
Total Fleet Operating Cost per Year:	\$114,848	\$139,390	\$141,397
Total Fleet Capital Cost:	\$318,192		:

Favorable	orable Unfavorable				
\$15,152 \$14,000 \$1,152			\$15,152 \$14,000 \$1,152		<b>\$</b>
\$428 \$288 \$140			\$1,276 \$576 \$700		
2 5	12 1	7 2	2 5	12 1	7 2
13.47	16.16	18.86	13.47	16.16	18.86
47.37	56.84	66.32	78.95	94.74	110.53
15.21	18.25	21.29	23.10	27.73	32.35
76.05	91.26	106.47	115.52	138.63	161.73
\$0.5	\$0.6	\$0.7	\$0.8	\$0.9	\$1.1
\$4.2	\$4.2	\$8.4	\$8.4	\$8.4	\$8.4
\$12,0	\$12.0	\$12.0	\$12.0	\$12.0	\$12.0
\$16.7	\$16.8	\$21.1	\$21.2	\$21.3	\$21.5
219 219	219 219	219 219	292 292	292 292	292 292
\$227	\$272	\$317	\$459	\$551	\$642
13.1	13.1	13.1	8.7	8.7	. 8.7
\$1.97	\$1.66	\$1.75	\$2.71	\$2.30	\$2.01
\$1.77	\$1.50	\$1.61	\$2.28	\$1.94	\$1.69
\$0.20	\$0.16	\$0.14	\$0.44	\$0.36	\$0.31
\$4,306	\$4,372	\$5,358	\$7,922	\$8,060	\$8,198
\$90,427	\$91,814	\$112,517	\$166,364	\$169,259	\$172,154
\$318,192			\$318,192		-

**Turbo Power Coach** Car Type: Toilet Type: WTS 8300 Manufacturer: Number of Passengers: 40 Number of Toilets: 25 EV Total Tank Capacity (gals): . ( - - -SECTION FRANCE \$1 3 B Scenario: (Le la Strance Expected Capital Cost \$7,576 Équipment: \$7,000 Installation: \$576 Maintenance Cost: \$426 - Labor: \$216 - Spare Parts: **\$210** pr g Hours per Trip: 2-12 .≥12 · 180 Trips per Day: <sub>ં ુ</sub>5ું Waste Generation Data 7.48 Waste Generated: 8,98 10.48 Flush Fluid Generated: 33.77 40.53 47.28 10.31 12.38 Capacity Adjustment: 14.44 51.57 Total Capacity Required per Day: 61.88 72.20 Pumpout Labor Cost: \$0.3 \$0.4 \$0.5 Connect/Disconnect Labor Cost: \$4.2 \$4.2. \$4.2 Cleaning Labor Cost: \$6.0 \$6.0 \$6.0 Total Pumpout/Cleaning Cost per Day: \$10.5° \$10.6 \$10.7 Days Operated per Year: 255 255 Clean-out Cycles per Year: 255 255 255 92,3 \$179 Waste Disposal Cost per Year: \$215 \$251 Maximum Continuous Hours of Service: 9.7 9.7 9.7 Total Operating Cost per Service Hour: \$1.29 \$1.09 \$0.95 - Trip Related: \$1.12 \$0.95 \$0.83 Non-Trip Related: \$0.17 \$0.14 \$0.12 Total per-Car Operating Cost per Year: \$3,404 \$3,298 \$3,351 Total Fleet Operating Cost per Year: \$46,166 \$46,909 \$47,653 **Total Fleet Capital Cost:** \$106,064

Favorable			Unfavorable			
\$7,576 \$7,000 \$576		,	\$7,576 \$7,000 \$576			
\$214 \$144 \$70	•		\$638 \$288 \$350			
2 · 5	12 1	7 2	2 5	12 1	7 2	
7.48	8.98	10.48	7.48	8.98	10.48	
26.32	31.58	36.84	43.86	52.63	61.40	
8.45	10.14	11.83	12.84	15.40	17.97	
42.25	50.70	59.15	64.18	77.01	89.85	
\$0.3	\$0.3	\$0.4	\$0.4	\$0.5	\$0.6	
\$2.1	\$4.2	\$4.2	\$4.2	\$4.2	\$4.2	
\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0	
\$8.4	\$10.5	\$10.6	\$10.6	\$10.7	\$10.8	
219 219	219 219	219 219	292 292	292 292	292 292	
\$126	\$151	\$176	\$255	\$306	\$357	
11.8	11.8	11.8	7.8	7.8	7.8	
\$0.99	\$1.02	\$0.88	\$1.37	\$1.16	\$1.02	
\$0.89	\$0.93	\$0.81	\$1.15	\$0.98	\$0.86	
\$0.10	\$0.08	\$0.07	\$0.22	\$0.18	\$0.16	
\$2,171	\$2,668	\$2,705	\$3,999	\$4,076	\$4,153	
\$30,399	\$37,351	\$37,865	\$55,991	\$57,063	\$58,135	
\$106,064			\$106,064		İ	

# APPENDIX E

EXPLANATION OF COST MODELS IN APPENDICES C AND D

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